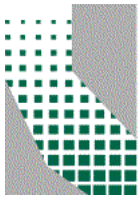

California Integrated Waste Management Board

MARCH 2007

Contractor's Report

To The Board

Used Oil Source Reduction Study: "Busting the 3,000 Mile Myth"

Produced Under Contract by:

California State University SAN MARCOS

California Environmental Protection Agency

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Acknowledgments

This report was prepared by the Social and Behavioral Research Institute at California State University San Marcos. The research team consisted of the following people:

Allen J. Risley, M.A.; Research Director

Michael D. Large, Ph.D.; Former Quantitative Study Director

Chuck Flacks, M.P.P., M.S.; Study Director

P. Wesley Schultz, Ph.D.; Consultant

Jolin E. Haley, B.A.; Research Assistant

Sam Ballard, B.A.; Research Assistant

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Executive Summary

This California State University San Marcos research study found that seventy-three percent (73%) of California drivers change their oil more frequently than their manufacturer recommends. The study took into account the type of vehicle people drive, how they drive (either in severe or normal conditions), and the age of the person's vehicle. The study also found that people's oil change intervals are predominately determined by the belief that changing their oil more frequently reduces engine wear. Most California drivers (66%) have reminder stickers on their windshields reminding them when to change their oil, and most California drivers (82%) go to professional oil changers or car dealers for their regular maintenance.

The findings from this study led to the creation of advertising messages encouraging drivers to go longer between oil changes and challenging the "3,000 mile myth." Messages were also created promoting the concept that using synthetic oil could allow drivers to go as long as 15,000 miles (five times the average) between changes. These ads were tested by focus groups in urban/coastal San Diego and rural/inland Sacramento.

Survey -In December of 2005 and January of 2006, the Social and Behavioral Research Institute at the California State University San Marcos (SBRI) conducted a random survey of 1,002 car owning (or leasing) households. The survey was conducted on behalf of the California Integrated Waste Management Board (CIWMB) to investigate the oil change frequency of California drivers and determine the need for a public education campaign to reduce used oil generation by motorists in California. Though SBRI carefully controlled their sampling to ensure regional and demographic representation, they ended up with a pool of respondents that was slightly more female, more Caucasian, less Hispanic, more multi-ethnic and better educated than that of the 2000 Census for California. These differences were even maintained when the sample was weighted by household size.

Frequent Oil Changers Vs. Waiters – A person was defined as a "Frequent Changer" if he or she changed his or her car's motor oil at or beyond the mileage recommended by the auto manufacturer. A person was considered a "Waiter" if he or she changed his or her car's oil less frequently than that recommended by the auto manufacturer. Of the 400 people in the study for whom the manufacturer recommended oil change interval was known (based on their make and model of car), seventy three percent (73%) were Frequent Changers. Frequent Changers were more likely to: be women; ;be middle aged or seniors; ;use synthetic oils; ;drive imported cars;; be "normal" drivers; ;use professional changers; and; have a windshield sticker.

Use of Professionals – The response data showed that thirty-four percent (34%) of California drivers use their car dealer for oil changes, twenty-four percent (24%) use a "quick lube specialty shop" and twenty-four percent (24%) use some other auto repair place. Thus, eighty-two percent (82%) of California drivers reported having professionals change their car oil. Sixty-six percent (66%) of respondents have a window sticker reminding them of when to change their oil; however, only twenty-six percent (26%) reported relying on these stickers to know when to change their oil. The highest proportion (37%) reported that they check their mileage on their odometer to determine when to change their oil. However, this varied by gender. Thirty-five percent (35%) of women reported relying on their window stickers and forty-seven percent (47%) of men reported relying on the odometer.

Factors Influencing Oil Change Behavior – An informal survey of quick lube oil change chain outlets in San Diego County revealed that the average recommended mileage between oil changes was 3,000 miles. The median and modal reported mile change interval in the study was 3,000

miles. Thus, it was appropriate that SBRI ask survey participants about their views regarding changing their oil every 3,000 miles. Participants were asked to rate, on a 0-10 scale of importance, how each of the following might influence their oil change frequency. The statements were:

Going longer between oil changes decreases fuel efficiency

- Going longer between oil changes increases engine wear
- Going longer between oil changes helps the environment
- Going longer between oil changes saves money
- Going longer between oil changes saves time

The overall highest mean score of 7.39 was for the response "going longer increases engine wear", followed by a mean score of 6.94 for "going longer decreases fuel efficiency".

In similar fashion, participants were asked to rate their feeling of importance about changing their oil every 3,000 miles on a zero to 10 scale. In addition, they rated the difficulty of changing, the future likelihood of changing, their past frequency of changing and their estimate of how many other people change at 3,000 miles.

On average, California drivers rated the importance of changing their oil at 3,000 miles a 6.98 out of ten. Interestingly, they rated the difficulty of changing their oil at 3,000 miles a 6.76. Thus, California drivers feel that it is very important, but somewhat difficult to change their oil every 3,000 miles.

When comparing the relative importance of all of these factors with the chance that someone was a frequent changer, the most important predictive factors were their belief that frequent changes prevents engine wear and their future likelihood of changing their oil at 3,000 miles.

Advertising Messages for Behavior Change

Using results from the survey, four messages were developed to be tested on the demographic profile of California frequent Changers --

- Women (more likely to use the ubiquitous 3,000 mile sticker as a guide)
- Aged 35-60 (again, more likely to be frequent Changers)
- People who use oil change places or their dealers for oil changes
- Drivers of Accords, Camrys and Ford Escorts – these represented the most common cars on the road according to the telephone survey

The ads were targeted to these drivers and two focus groups of these drivers tested the ads and made design critiques. The ads, as constructed, are not ready for distribution, but may serve as a template for effective messaging.

The message that proved most effective in general was the ad showing a woman (peer) encouraging drivers to trust the manufacturer of their cars and challenge the 3,000 mile myth being promoted by the oil change shops. The synthetic oil ads were not well-received by the focus groups. Participants were suspicious of the message and a bit skeptical of the extra expense.

Part I: Telephone Survey

Introduction

A telephone survey of California residents who possess automobiles was conducted in December of 2005 and January of 2006. The survey was part of a larger project aimed at understanding oil change patterns among California motorists and examining the feasibility of extending oil change intervals. The project involves three primary components: (1) a survey of California Residents, (2) the development of motivational messages that would be effective in changing behavior, and (3) focus groups to solicit reactions to the messages and explore motivations for behavior.

The survey audience was California car owners and lessees and survey questions were designed to determine respondents' frequency of oil changes and barriers to extending oil change intervals. .The survey addressed the attitudes, beliefs, and behaviors surrounding changing the oil in their vehicle. Additionally, respondents were asked a number of demographic questions.

The survey was conducted for the California Integrated Waste Management Board by the Social and Behavioral Research Institute at California State University San Marcos. The telephone survey was conducted as part of the Used Oil Source Reduction Study. Following is a description of the survey process, an elaboration of the results of the survey, and a summary of the key findings.

Data

The information in this report is based on 1,002 telephone interviews conducted with adult residents in the State of California who possess an automobile. Household telephone numbers were selected using random-digit-dial methodology, so all listed and unlisted residential telephone numbers within the state had an equal chance for inclusion in the sample. The sample was stratified by region, to ensure that respondents were representative of the state geographically. Adults who reported that they had a car were considered eligible for the study.

All interviews were conducted by SBRI staff members using the SBRI's Computer Assisted Telephone Interviewing (CATI) system, under the supervision of SBRI's professional staff. SBRI's supervisory staff employs a silent monitoring system to listen to interviews in real-time for quality control purposes.

Interviewing for this study was conducted between December 1st, 2005 and January12th, 2006, on-site at the SBRI survey lab at California State University San Marcos. Scheduling of the interviewing sessions was arranged to ensure that a representative sample of California households were contacted. Up to eight call attempts were made to telephone numbers before retiring the numbers. The relatively high number of call attempts was to allow California residents with busy schedules and lifestyles to have enough opportunities to participate in the survey.

The questionnaire for this study was designed by SBRI in consultation with CIWMB staff. The questionnaire included items addressing vehicle characteristics, driving behavior, and oil change behavior. It also included attitudes and beliefs about changing the oil in their vehicle, as well as some demographic information. The interview questions can be found in Appendix A. The margin of error for this sample survey is +/-3 percent. SBRI conducted statistical analyses for this report using standard appropriate statistical procedures and measures, reporting statistically

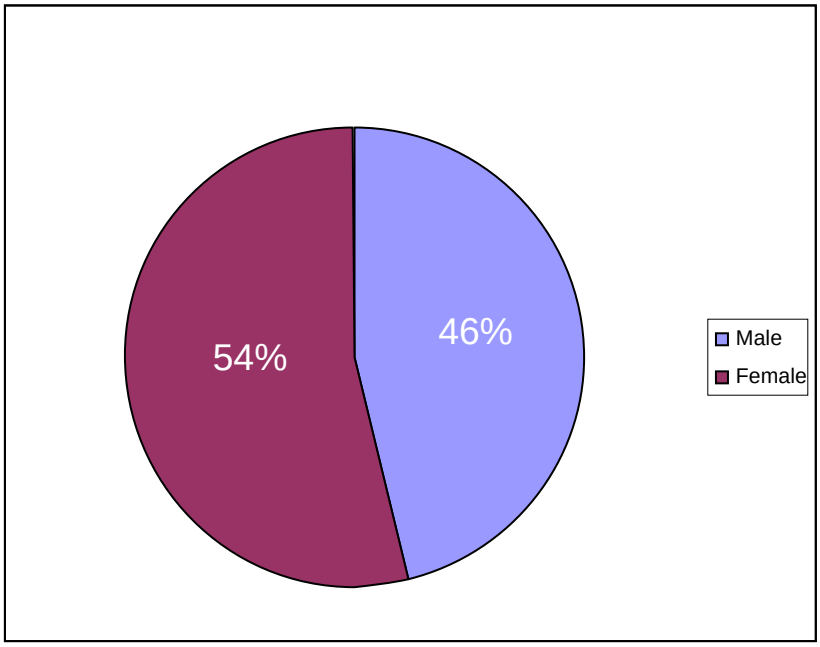
significant results at the 95% confidence level. Documentation of the statistical tests employed by SBRI is archived and available for client review.

Results

Participant Demographics

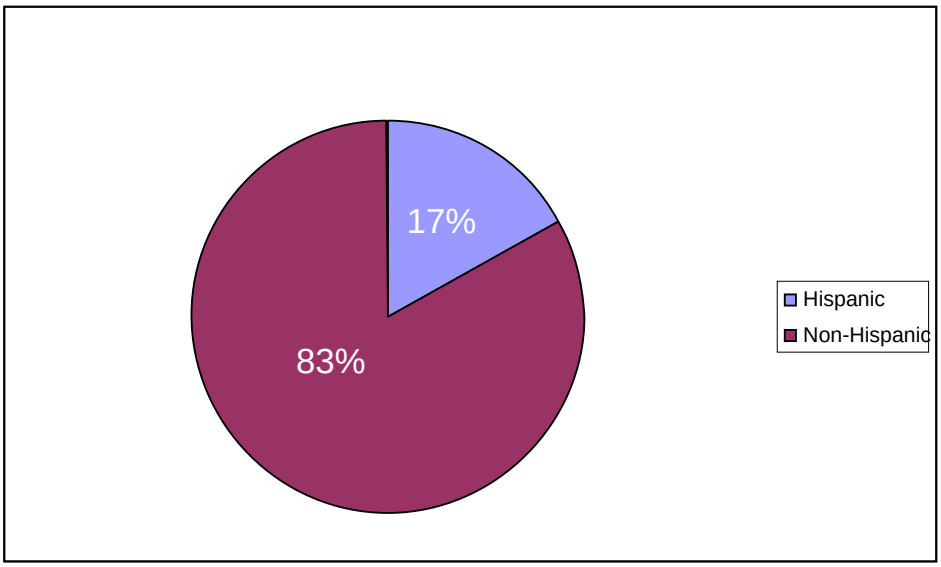
This section provides a description of the California residents surveyed for the study. More of the respondents were female (54.2%) than were male (45.8%). This is illustrated in Chart 1. According to the U.S. Census, 2000, the gender breakdown for California was 50.2% female and 49.8% male. Thus, women were slightly over-represented.

Chart 1: Participant Gender



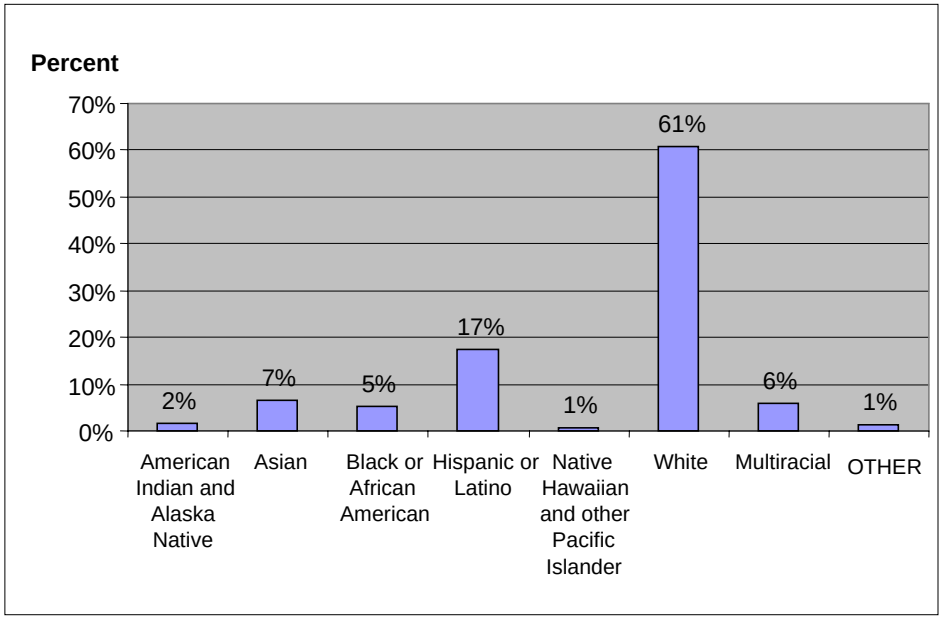
These respondents averaged 49.24 years of age, ranging from 18 to 94 years old.

Chart 2: Percentage of Participants Who Were Hispanic



Most respondents reported that they were non-Hispanic (Chart 2). The breakdown by race is shown in Chart 3 below. The percentages are weighted by household size to more accurately reflect their representation in the population.

Chart 3: Racial Breakdown of Participants Weighted



For comparison, Census estimates for California in 2004 showed people of Hispanic or Latino origin at 35%, and White non-Hispanic at 44.5%. People who labeled themselves as White accounted for 61% of the sample. The remainder were American Indian and Alaska Native (1.2%), Asian (12.1%), Black (6.8%), Native Hawaiian or other Pacific Islander (.4%), and multiracial (2.4%). The number of people in the household ranged from one to 11, and averaged

2.79. These household size results were used to weight the racial background and educational attainment population figures. Rather than assume that each participant lived alone, his or her racial representation was weighted by the average household size to better reflect overall representation.

Chart 4: Educational Attainment

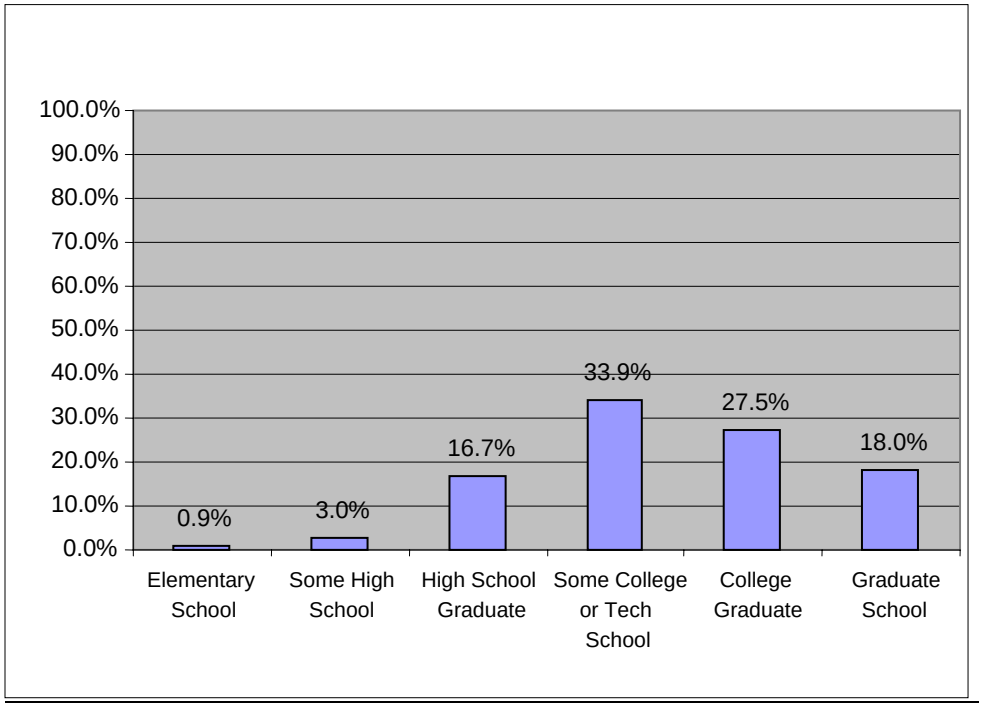


Chart 4 shows that the sample was more educated than the average for California. Nearly 80% of the sample had graduated from high school and had at least some college. This compares to 57% for the State of California's results from the 2000 Census. These results held true even when the sample was weighted by household size (the numbers in Chart 4 reflect this weighting).

Thus, this sample is more Caucasian, less Hispanic, more multi-ethnic, and better educated than the expected values given the State of California's averages in the 2000 Census.

Vehicle Information

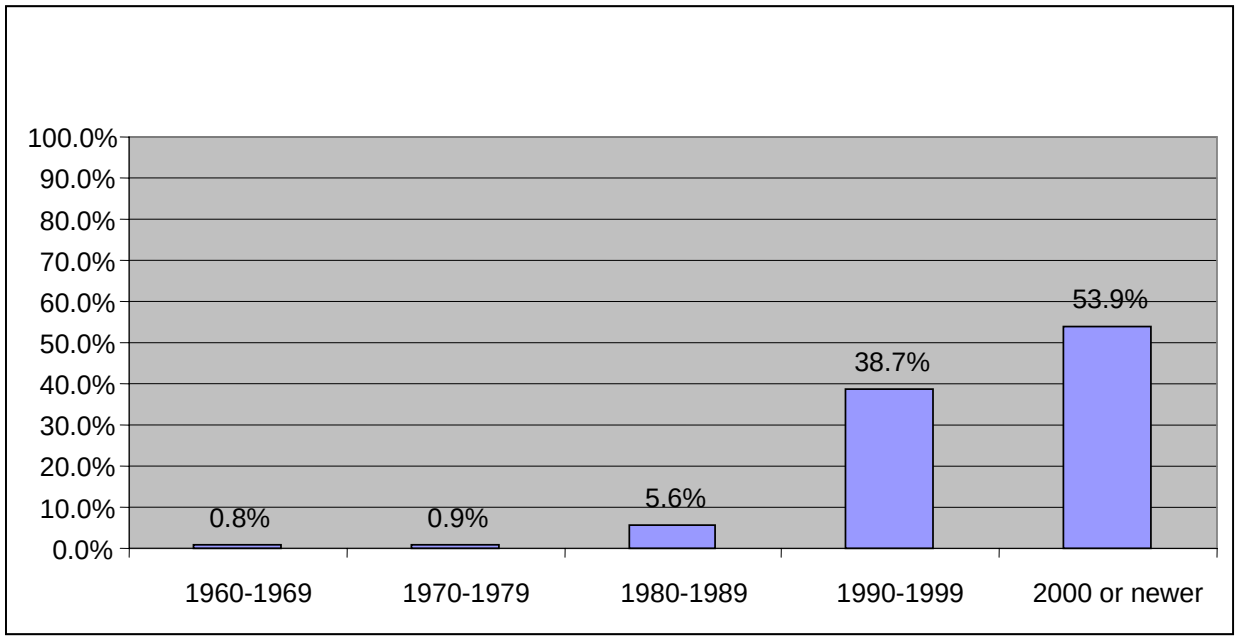
For the purposes of the survey, respondents were asked to consider the vehicle that they drove most often. Respondents were selected if they had an automobile. Almost all (95.1%) of the respondents reported that they owned the vehicle rather than leased.

Makes of Cars Driven -- Below is the percent breakdown of the sample by the make of the cars they drove. The range was from 15.1% Toyota drivers to .1% Suzuki drivers.

Toyota	15.1%	Mitsubishi	1.8%	Daewoo	0.3%
Ford	13.1%	OTHER	1.7%	Jaguar	0.3%
Honda	11.3%	Pontiac	1.5%	Scion	0.3%
Chevrolet	8.2%	Saturn	1.5%	Isuzu	0.2%
Dodge	5.0%	Subaru	1.4%	HUMMER	0.1%
Nissan	4.1%	Hyundai	1.2%	Suzuki	0.1%
Chrysler	3.55%	Lincoln	1.1%		
Mercedes-Benz	3.05%	Mazda	1.0%		
Lexus	2.8%	Cadillac	0.9%		
Jeep	2.7%	Infiniti	0.9%		
Buick	2.5%	Kia	0.8%		
Volkswagen	2.4%	Mercury	0.8%		
GMC	2.3%	Oldsmobile	0.5%		
Acura	2.1%	Plymouth	0.5%		
BMW	2.1%	Audi	0.4%		
Volvo	2.0%	Geo	0.4%		

Year of Cars Driven – Chart 5 shows that 93% of California drivers had cars made in 1990 or later. Over half (53.9%) were made in 2000 or later. Thus, the majority of cars on California roads are relatively new.

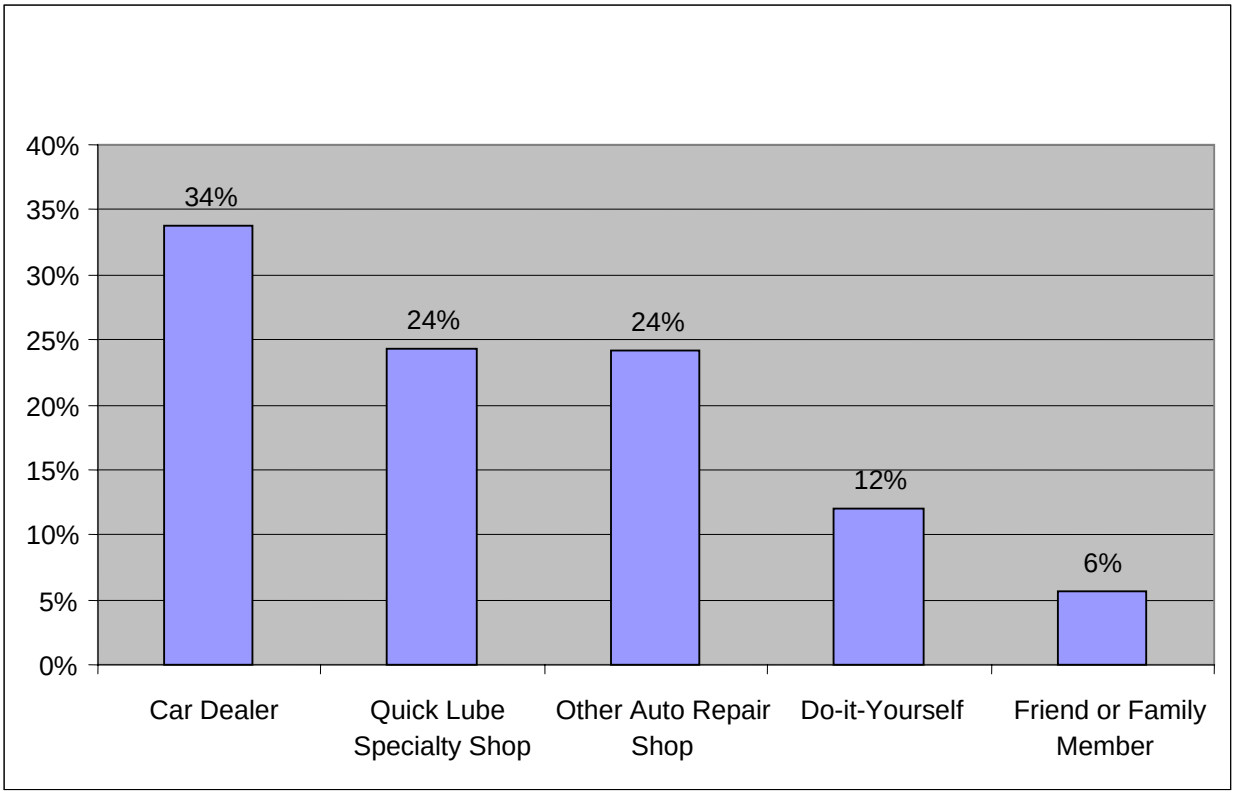
Chart 5: Year that Participants' Cars Were Made



Oil Change Behavior

Chart 6 shows that having the oil and filter changed at a car dealership was the most common practice. Thirty-four percent (34%) of participants had their oil changed at the dealership. Eighty-two percent (82%) of participants had their oil changed by professionals. Only 18% of participants were "Do-it-Yourselfers," that is, they either changed their own oil or had a friend or family member do it.

Chart 6: Who Typically Changes Your Oil?

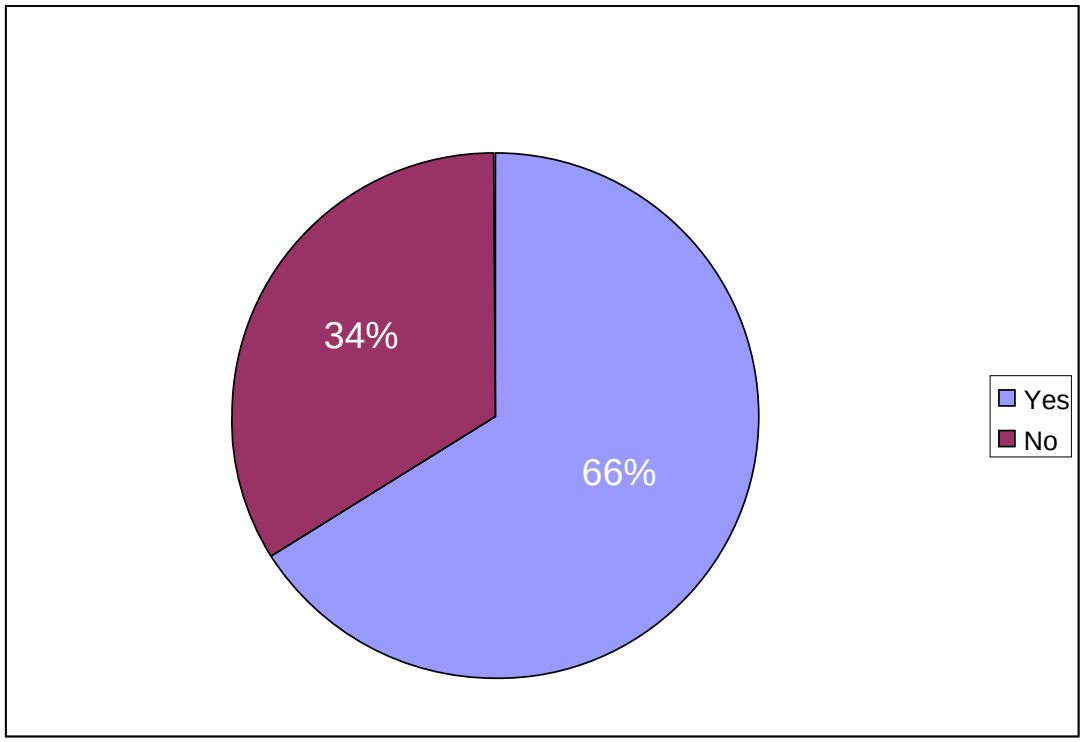


These results varied by gender. Men were much more likely to do it themselves or have a friend or family member change their oil than women (24% vs. 13%).

These results also varied by transmission type. Manual transmission drivers were more likely to be Do-it-Yourselfers (30% vs. 15%).

Given the results in Chart 6, it is not surprising that many people rely on window stickers that give the advice of professionals regarding when to change their oil. Chart 7 shows the percent of drivers with oil change window stickers.

Chart 7: Percent of Drivers with Oil Changes Stickers



As shown in Chart 7, two-thirds of California drivers have window stickers reminding them to change their oil. It was somewhat surprising, then, to discover that the sticker was not the most important reminder for participants to change their oil. In fact, as shown in Chart 8, the most important reminder was the odometer reading itself:

Chart 8: How People Know When It's Time to Change Their Oil

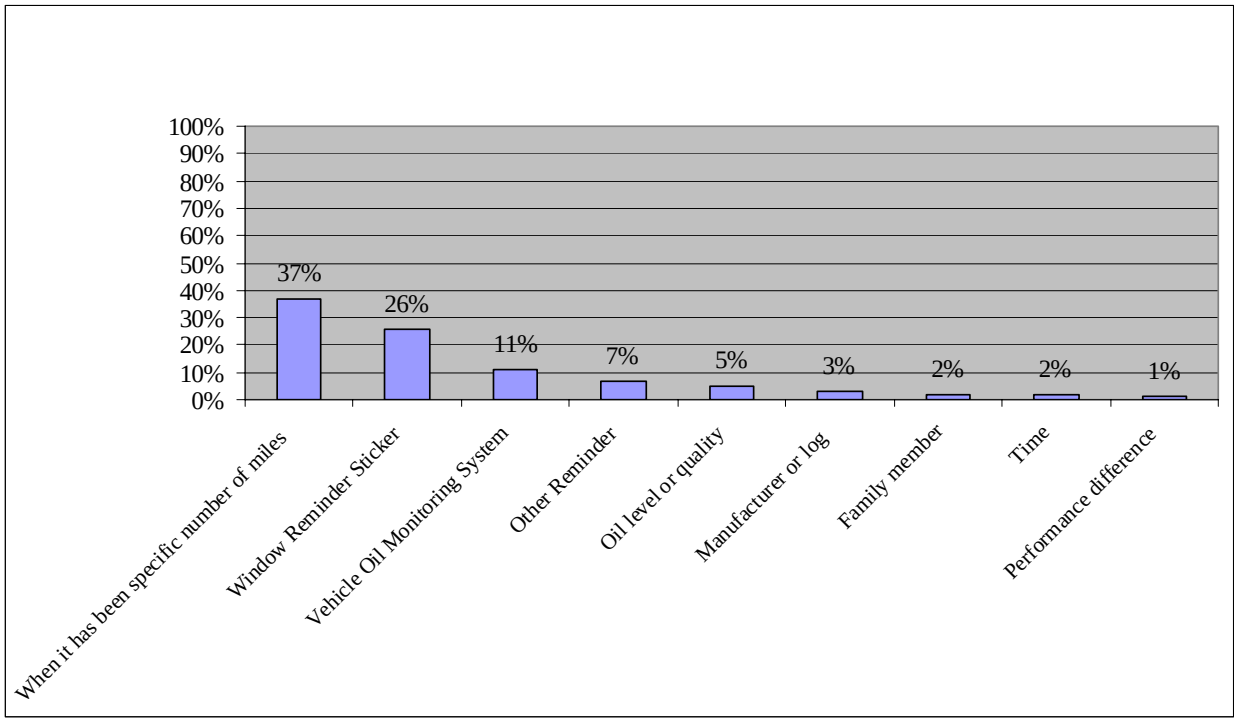
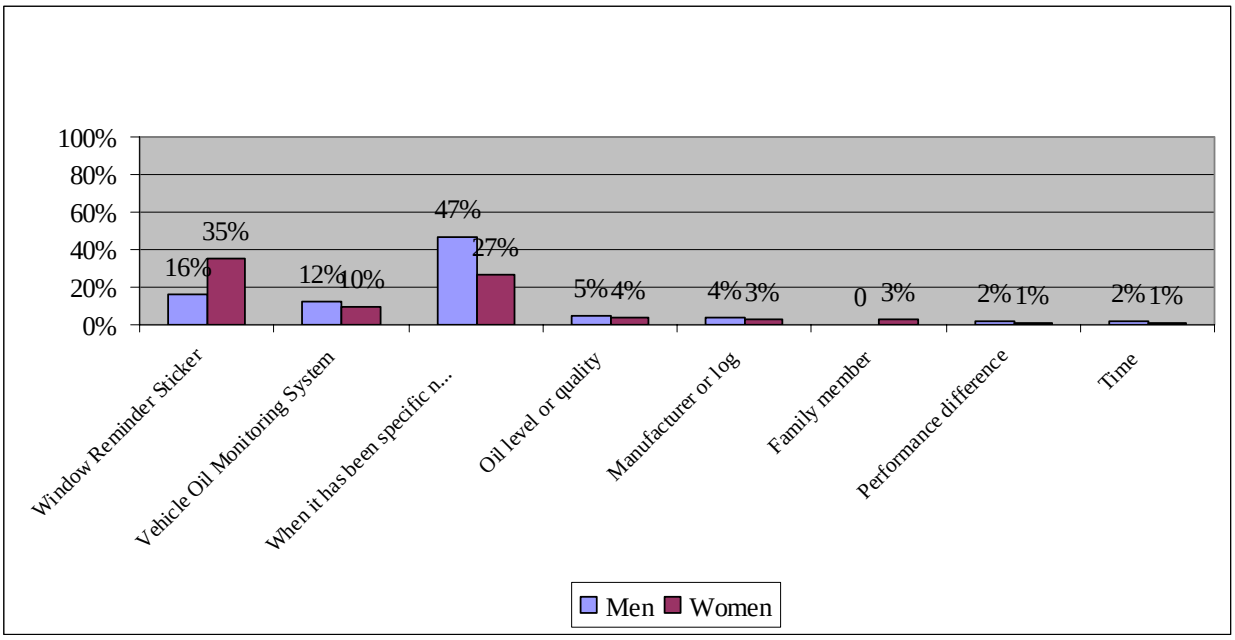


Chart 8 shows that nearly 4 in 10 of California drivers refer to the odometer to tell them that they have driven the requisite number of miles for them to change their oil. The modal number of miles was 3,000.

Chart 9: How People Know When to Change Oil by Gender



This tends to vary by gender. Chart 9 shows that for those who use the odometer ("when it has been a specific number of miles"), men are much more likely than women to rely on the odometer reading (47% vs. 27%). However, for those who use their oil stickers as a reminder, women are much more likely than men to use them (35% vs. 16%). In other words, men are more likely than women to watch their odometer to determine when to change their oil and women are much more likely than men to check their window sticker to remind them to change their oil.

Oil Change Intervals

Miles between Oil Changes

Table 1 shows the average number of miles between oil changes. The mean mileage change interval was 4,221 miles.

Table 1: Oil Change Interval in Aggregate

	N	Minimum	Maximum	Mean	Std. Deviation
Miles between Oil and Filter Change	880	450	35000	4220.97	2840.538

It is important to note, however, that manufacturer's recommendations about when to make oil changes vary a great deal. Thus, a better measure of miles between oil changes is actually the difference between the manufacturer's recommendation and the actual mileage that the driver changed the oil.

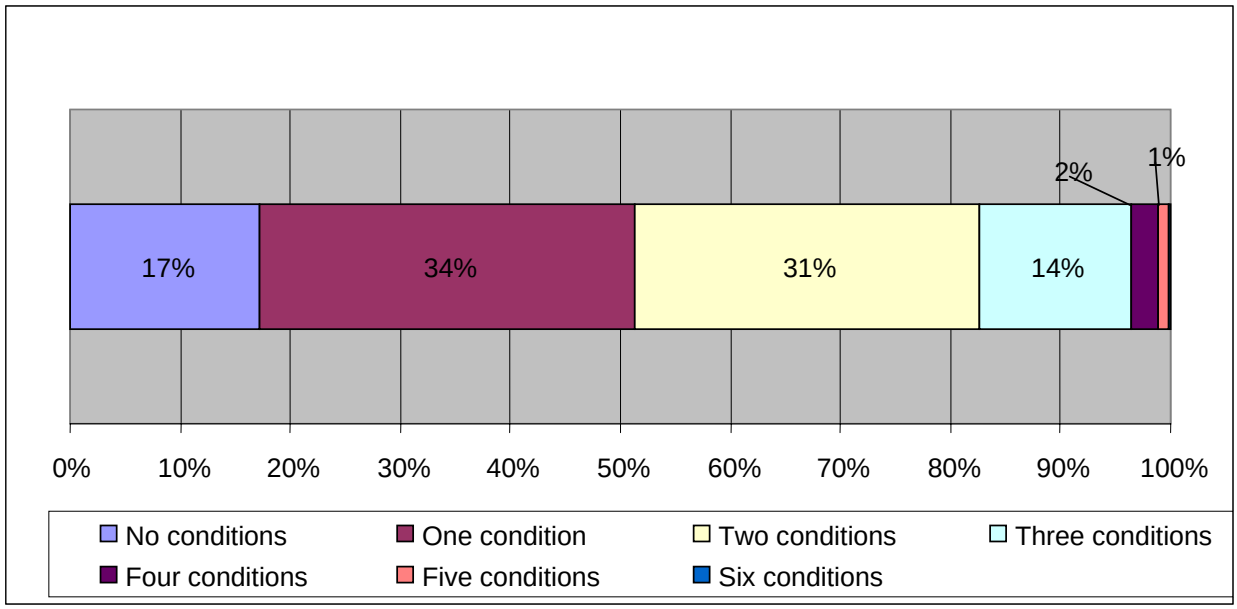
For the purposes of this study, staff contacted car dealerships to inquire about the manufacturer's recommended oil change intervals. Not all makes and models were available.

When the manufacturer's recommended interval is subtracted from the drivers' actual change interval, a zero would indicate that the driver matched the manufacturer's recommendation; a

positive number would mean that the driver exceeded the mileage recommendations, and a negative number would mean that the driver changed the oil more frequently or at lower miles than the manufacturer recommended.

This interval is further complicated by driving severity. According to all of the car dealerships contacted for this study, drivers considered severe are recommended to change their oil more frequently, or at shorter mileage intervals, than drivers considered normal. Thus, manufacturer's recommendations differ depending on how one drives his or her car.

Chart 10: Drivers' Scores on Severity Scale



Severe drivers were those who drove in the following conditions in a typical week:

- In extensive idling or in stop-and-go traffic
- In cold weather, less than 10 degrees
- In extreme heat, more than 90 degrees
- In extreme humidity
- Repeated short-distance trips of less than 5 miles
- Towing a trailer or using a car top carrier

In Chart 10 above, 17% of drivers reported that they drove in none of these conditions, 34% drove in one, 31% drove in two, 14% drove in three, 2% drove in four, 1% drove in five and zero drove in all six severe conditions. To be considered a severe driver, a person needed to only drive in one of these severe conditions. Thus, if 17% or 172 people in the sample were "normal drivers," 83% or 830 people were "severe drivers."

The recommended oil change interval varies depending on whether a person is a severe driver or a normal driver. In Table 2, the values are recomputed to account for both driving severity and the manufacturer's recommendation.

Table 2: Oil Change Interval in Miles

	N	Mean	Median	Std. Deviation	Range	Minimum	Maximum
Severe	387	(58)	-	2,830	36,000	(9,000)	27,000
Normal	387	(3,255)	(3,500)	2,984	37,000	(12,000)	25,000

Table 2 shows that severe drivers on average change their oil according to the manufacturer's recommendations. The table shows that normal drivers average about 3,300 miles earlier than manufacturer's recommendations in their oil changes.

The lower N values are the result of limited information about certain makes and model of car. Where the recommended mileage for participants' models was not known, those participants in the study were excluded. Thus, 400 cases remain. The differences between severe and normal drivers are made clearer in Table 3.

Table 3: Difference in Mean Distances Between Normal and Severe Drivers

Severe Driver	N	Mean	Std. Deviation	Std. Error Mean
No	84	-2819.05	2230.37	243.35
Yes	316	141.38	2388.57	134.37

Similarly, Table 3 shows that severe drivers were, on average, adhering quite closely to manufacturer's recommendations. Normal drivers, on average, reported changing their oil much more frequently (nearly 3,000 miles more frequently) than their manufacturers recommended.

On the next page are all of the makes of cars in the study with the manufacturers' recommendations for oil changes based on driving conditions for those makes which a recommendation was available. Each table shows the total number of participants with each particular make of car and the mileage interval each participant reported changing his or her oil.

Recommended Oil Change Interval for Normal Conditions by Make of Car

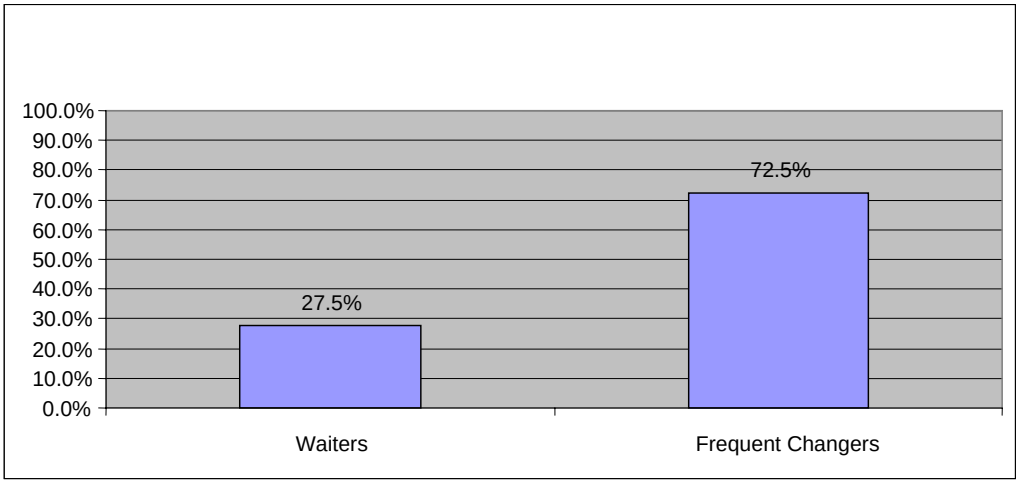
	Acura	Buick	Cadillac	Chevrolet	Ford	GMC	Honda	Infiniti	Isuzu	Lexus	Lincoln	Mercury	Mitsubishi	Oldsmobile	Pontiac	Scion	Subaru	Toyota	Volkswagen	Volvo	OTHER	Total
3000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	10
5000	0	0	0	0	85	0	0	0	0	0	7	7	0	0	0	2	0	30	17	0	1	149
6250	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7000	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	23
7500	14	18	1	40	0	11	63	9	2	0	0	0	18	1	10	0	3	78	0	20	0	288
10000	0	0	1	4	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
12000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	14	18	2	46	85	11	100	9	2	23	7	7	18	1	10	2	13	108	17	20	1	514

Recommended Oil Change Interval for Severe Conditions by Make of Car

	Acura	Buick	Cadillac	Chevrolet	Ford	Geo	GMC	Honda	Infiniti	Isuzu	Lexus	Lincoln	Mercury	Mitsubishi	Oldsmobile	Pontiac	Toyota	OTHER	Total
3000	0	17	2	42	84	1	10	0	9	2	0	7	7	18	1	10	0	1	211
3125	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3750	14	0	0	0	0	0	0	61	0	0	0	0	0	0	0	0	0	0	75
5000	0	0	0	0	1	0	0	35	0	0	23	0	0	0	0	0	78	0	137
6000	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
7500	0	1	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5
12000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	14	18	2	46	85	1	11	100	9	2	23	7	7	18	1	10	78	1	433

Chart 11 shows the breakdown when Frequent Changers are defined as anyone who changes their oil at or below the manufacturer's recommended mileage. Waiters are defined as those who change their oil at mileages above the manufacturers' recommendations. For the 400 drivers whose manufacturer recommendations were known, nearly three-quarters change their oil frequently.

Chart 11: Frequent Changers vs. Waiters



A Closer Look at Frequent Changers vs. Waiters and Severe vs. Normal Drivers

The following two tables examine the demographic breakdowns of the four groups of participants – Frequent Changers vs. Waiters and Severe drivers vs. Normal. A discussion of the value of this information will follow:

Changers Vs. Waiters			
Category	Sub-category	Changers, N=290	Waiters, N=110
Gender			
	Female	56.2%	45.5%
	Male	43.8%	54.5%
Ethnicity			
	Native American	1.1%	1.9%
	Asian	9.7%	4.8%
	African American	3.7%	0.0%
	Hispanic	14.9%	12.4%
	Pacific Islander	1.1%	0.0%
	White	63.9%	71.4%
	Multiracial	1.5%	2.9%
Hispanic?			
	Yes	16.5%	13.8%
	No	83.5%	86.2%
Education			
	Elementary	0.7%	2.0%
	Some High School	3.2%	0.0%
	High School Grad	15.1%	13.8%
	Some College	35.6%	33.9%
	College Grad	29.6%	26.6%
	Graduate School	15.8%	23.9%
Age			
	18-28	14.4%	9.3%
	29-39	19.8%	24.1%
	40-49	16.5%	24.1%
	50-59	21.9%	18.5%
	60-69	11.5%	18.5%
	70-79	12.6%	4.6%
	Over 80	3.2%	0.9%
Oil Type			
	Natural	60.4%	68.0%
	Synthetic	39.6%	32.0%
Car Age			
	Average	6.25	6.10
Title			
	Own	96.5%	97.2%
	Lease	3.5%	2.8%
Car Make			
	Domestic	35.5%	59.1%
	Import	64.5%	40.9%
Transmission			
	Automatic	84.8%	82.7%
	Manual	15.2%	17.3%
Normal Vs. Severe?			
	Normal	26.2%	7.3%
	Severe	73.8%	92.7%
Who Changes Oil?			
	Do-It-Yourself	12.6%	19.1%
	Professional	86.7%	81.0%
Reminder Sticker?			
	Yes	73.9%	64.2%
	No	26.1%	35.8%

Normal Vs. Severe Drivers			
Category	Sub-category	Normal, N=172	Severe, N=830
Gender			
	Female	50.6%	45.1%
	Male	49.4%	54.9%
Ethnicity			
	Native American	1.9%	1.4%
	Asian	8.3%	5.2%
	African American	7.6%	4.1%
	Hispanic	8.9%	15.1%
	Pacific Islander	1.3%	0.5%
	White	64.3%	66.7%
	Multiracial	7.0%	5.8%
Hispanic?			
	Yes	10.1%	18.0%
	No	89.9%	82.0%
Education			
	Elementary	0.0%	1.0%
	Some High School	0.0%	3.2%
	High School Grad	18.0%	15.7%
	Some College	30.5%	33.9%
	College Grad	32.9%	26.1%
	Graduate School	18.6%	20.1%
Age			
	18-28	7.3%	12.4%
	29-39	17.7%	19.5%
	40-49	20.7%	19.2%
	50-59	28.0%	22.8%
	60-69	14.6%	13.4%
	70-79	9.8%	9.1%
	Over 80	1.8%	3.7%
Oil Type			
	Natural	53.4%	62.6%
	Synthetic	46.6%	37.4%
Frequency			
	Changer	90.5%	67.7%
	Waiter	9.5%	32.3%
Car Age			
	Average		
Title			
	Own	98.2%	94.4%
	Lease	1.8%	5.6%
Car Make			
	Domestic	44.2%	44.6%
	Import	55.2%	53.1%
Transmission			
	Automatic	87.6%	82.8%
	Manual	12.4%	17.2%
Who Changes Oil?			
	Do-It-Yourself	13.0%	18.5%
	Professional	85.3%	81.0%
Reminder Sticker?			
	Yes	67.1%	65.3%
	No	32.9%	34.7%

The two tables above compared some of the demographics findings with both oil change behavior and driving severity.

Oil Change Behavior by Other Variables

This table showed some differences between Frequent Changers and Waiters of note.

- Frequent Changers were more likely to be women than men.
- Waiters were more likely to be men than women.
- Waiters were more likely to be in the 40-49 age bracket and the 60-69 age bracket than Frequent Changers.
- Frequent Changers were slightly more likely to use synthetic oil than Waiters – a finding that runs counter to what one would expect given that synthetic oils allow a driver to go longer between changes.
- Frequent Changers were more likely to drive imported cars.
- Waiters were more likely to drive domestic cars.
- The majority of both Changers and Waiters are severe drivers; however, Waiters are much more likely to be severe drivers than Changers.
- Changers are slightly more likely to have their oil changed by a professional changer vs. doing it themselves.
- Changers were more likely to have an oil change reminder sticker on their windshield than Waiters.

Driving Behavior (Severe vs. Normal) by Other Variables

Some key differences between severe and normal drivers are listed below:

- Normal drivers were slightly more likely to be women than men.
- Severe drivers were slightly more likely to be men than women.
- Normal drivers were slightly more likely to be college graduates than Severe drivers.
- Normal drivers were more likely to be 50-59 years old than Severe drivers.
- Severe drivers were more likely to use natural oil than Normal drivers.
- While the majority of both Normal and Severe drivers were frequent oil Changers, Normal drivers were much more likely to be Frequent Changers than Severe drivers.
- While the vast majority of both groups used automatic transmissions, Normal drivers were slightly more likely than Severe drivers to use automatic.
- While the vast majority of both groups went to professional oil changers, Normal drivers were slightly more likely than Severe drivers to use professionals.
- Similarly, do-it-yourself oil changers were slightly more likely to be severe drivers.

Attitudes about Changing Oil Every 3,000 Miles

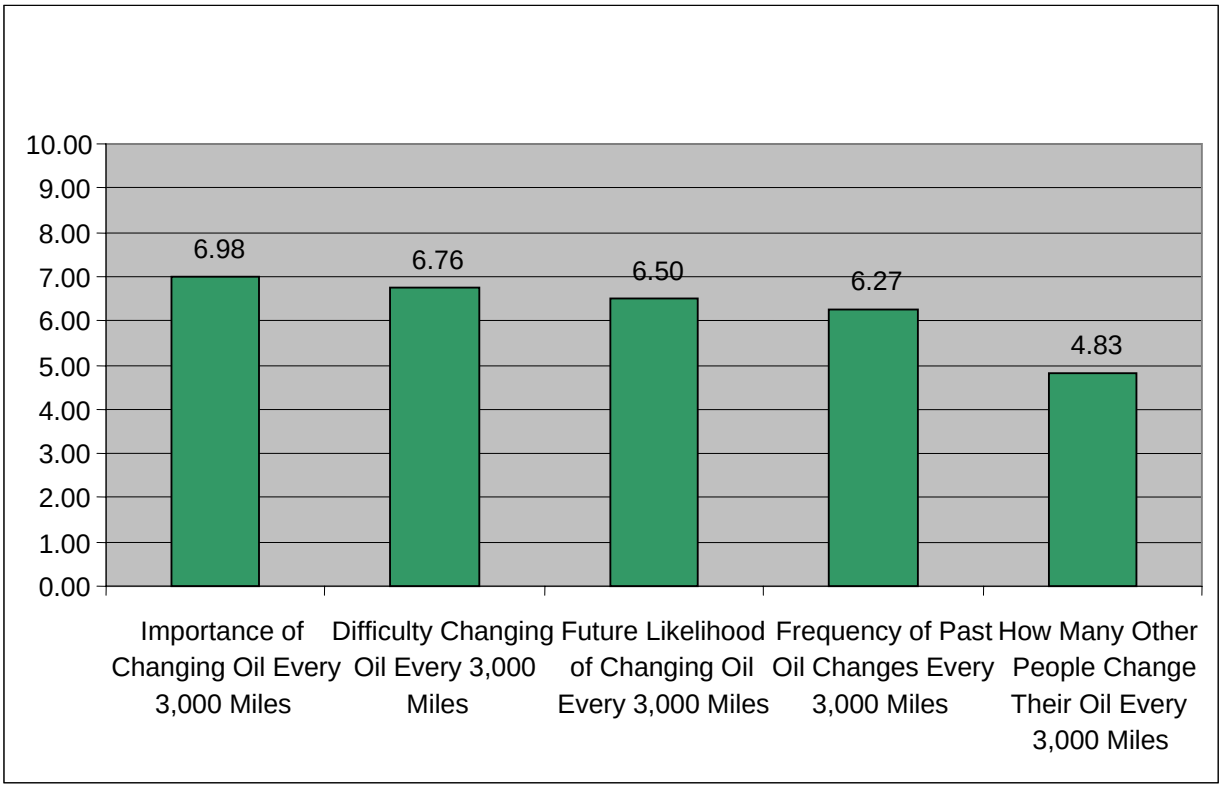
Survey participants were asked a series of questions regarding their attitudes about changing the oil in their car at 3,000 mile intervals. This interval was selected because it is the recommended

interval at most major commercial oil change businesses. Each of these attitudes was measured on a zero-to-ten scale, with higher numbers indicating more of the quantity being measured. For example, respondents were asked how difficult it would be to change their motor oil every 3,000 miles, using a scale of zero-to-ten, where zero means very easy and ten means very difficult. Table 4, which summarizes these attitudes, shows an average rating of 6.76 for the difficulty of changing their motor oil every 3,000 miles.

Table 4: Attitudes About Changing Oil Every 3,000 Miles

	N	Mean
How Many Other People Change Their Oil Every 3,000 Miles	817	4.83
Frequency of Past Oil Changes Every 3,000 Miles	959	6.27
Future Likelihood of Changing Oil Every 3,000 Miles	983	6.50
Difficulty Changing Oil Every 3,000 Miles	974	6.76
Importance of Changing Oil Every 3,000 Miles	985	6.98

Chart 12: Attitudes Toward Changing Oil Every 3,000 Miles



The highest rating was given to the importance of changing oil every 3,000 miles. This was rated an average of 6.98 on the 10 point scale. The statement rated lowest was the belief that others changed their oil at 3,000 miles. The overall reading of these data is that people generally consider it quite important, but rather difficult to change their oil every 3,000 miles.

However, these findings become more illuminating when we examine the differences between "Frequent Changers" (including those who change their oil according at their manufacturer's recommendations) and "Waiters," those who tend to wait longer between oil changes.

For the next several charts, the importance ratings were grouped as follows: zero to four = "Not Important", five to seven = "Somewhat Important", and 8-10 = "Very Important."

Chart 13: Changers by Difficulty

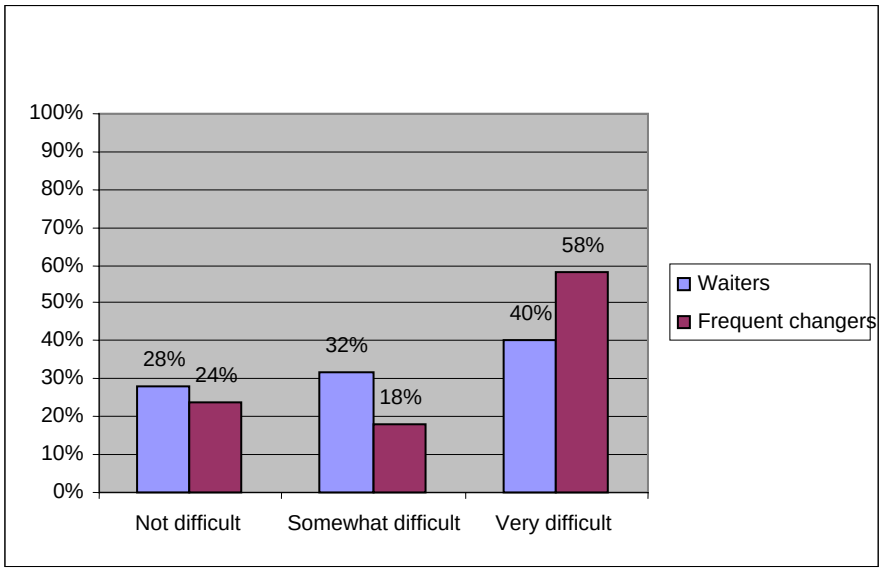


Chart 13 shows that Frequent Changers are more likely than Waiters to consider changing their oil very difficult. This finding is interesting because it means that those who engage in the unwanted behavior (changing at or below manufacturer's recommendations) consider it more difficult than those who do the wanted behavior (waiting longer between changes).

Chart 14: Changers by Importance

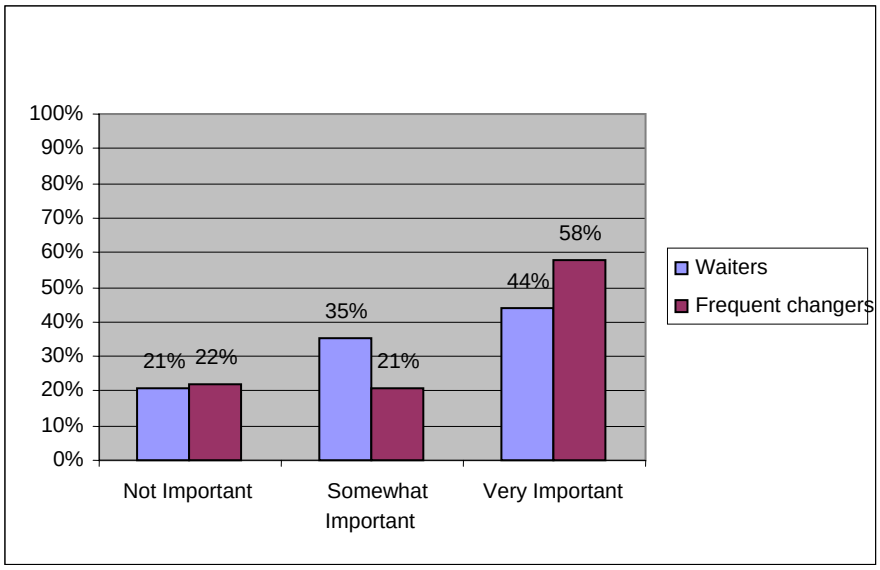


Chart 14 shows what one might expect – Frequent Changers are more likely to consider it very important to change their oil every 3,000 miles than Waiters. Similarly, Waiters are more likely than Frequent Changers to consider frequent changes only somewhat important.

Chart 15: Changers by Past Behavior

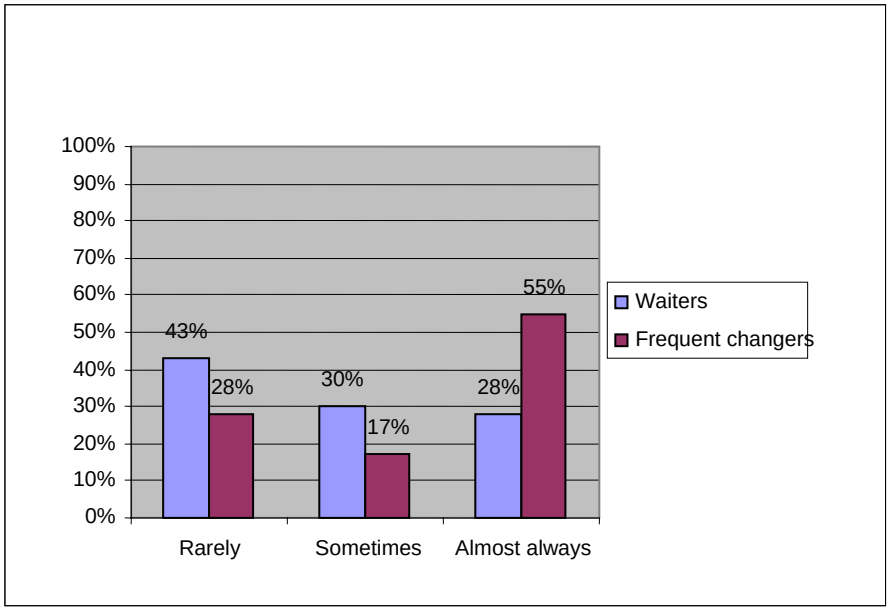
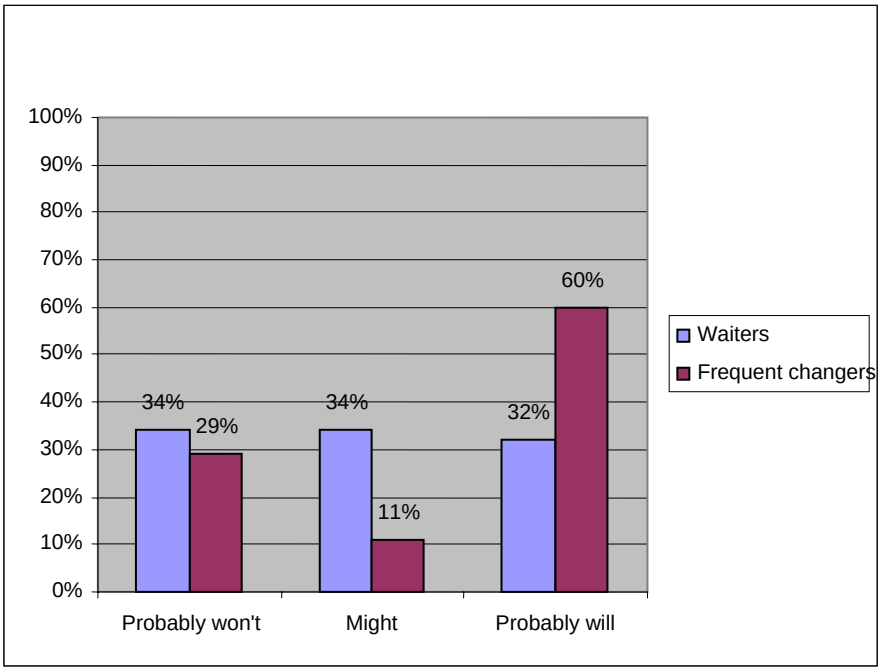


Chart 15 shows that ratings of past behavior among the two groups was as expected. The majority of Waiters report rarely or only sometimes changing their oil at the 3,000 mile interval; whereas, the majority of Frequent Changers report a habit of changing frequently.

Chart 16: Changers by Future Behavior



Similarly, Chart 16 shows that the intentions of the two groups matched what one might expect. Frequent Changers are much more likely to report intending to change at the 3,000 mile mark; whereas, the Waiters were more likely to report intending to wait longer. The behavior of others was not a significant difference between Frequent Changers and Waiters.

Table 5: Correlations Between Oil Change Behavior and Opinions About Oil Changes at 3,000 Miles

		Difficulty Changing Oil Every 3,000 Miles	Importance of Changing Oil Every 3,000 Miles	How Many Other People Change Their Oil Every 3,000 Miles	Frequency of Past Oil Changes Every 3,000 Miles	Future Likelihood of Changing Oil Every 3,000 Miles	Difference in Miles Between Actual and Recommended	Frequent Changers
Difficulty Changing Oil Every 3,000 Miles	Pearson Correlation	1	.183**	.105**	.262**	.232**	-.174**	.184**
	Sig. (2-tailed)		.000	.003	.000	.000	.000	.000
	N	974	962	808	936	955	398	398
Importance of Changing Oil Every 3,000 Miles	Pearson Correlation	.183**	1	.363**	.693**	.707**	-.236**	.301**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	962	985	810	947	968	395	395
How Many Other People Change Their Oil Every 3,000 Miles	Pearson Correlation	.105**	.363**	1	.349**	.306**	-.145**	.179**
	Sig. (2-tailed)	.003	.000		.000	.000	.007	.001
	N	808	810	817	796	807	344	344
Frequency of Past Oil Changes Every 3,000 Miles	Pearson Correlation	.262**	.693**	.349**	1	.743**	-.322**	.387**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	936	947	796	959	947	395	395
Future Likelihood of Changing Oil Every 3,000 Miles	Pearson Correlation	.232**	.707**	.306**	.743**	1	-.304**	.364**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	955	968	807	947	983	395	395
Difference in Miles Between Actual and Recommended	Pearson Correlation	-.174**	-.236**	-.145**	-.322**	-.304**	1	-.613**
	Sig. (2-tailed)	.000	.000	.007	.000	.000		.000
	N	398	395	344	395	395	400	400
Frequent Changers	Pearson Correlation	.184**	.301**	.179**	.387**	.364**	-.613**	1
	Sig. (2-tailed)	.000	.000	.001	.000	.000	.000	
	N	398	395	344	395	395	400	400

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5 Correlations -- In examination correlations of all of the attitudes in relation to the changing behavior of drivers, the strongest single predictor of change was Intention or the rating of future behavior.

Factors Influencing Oil Change Behavior

Study participants were then asked how various factors might influence their decision to go longer intervals between oil changes. They were reminded that there were no "right answers," but they were given the following statements and asked to rate how important each statement was on a 0-10 scale where zero meant not at all important and ten meant very important. The factors rated were:

- Going longer between oil changes decreases fuel efficiency
- Going longer between oil changes increases engine wear
- Going longer between oil changes helps the environment
- Going longer between oil changes saves money
- Going longer between oil changes saves time

In aggregate, the mean scores on each of these factors are shown below in Chart 17:

Table 6: Factors That Influence People to Go Longer Between Changes

	N	Mean
Engine wear	983	7.39
Fuel efficiency	962	6.94
Help environment	965	6.59
Save money	977	5.65
Save time	969	5.24

Chart 17: Factors that Influence People to Go Longer Between Oil Changes

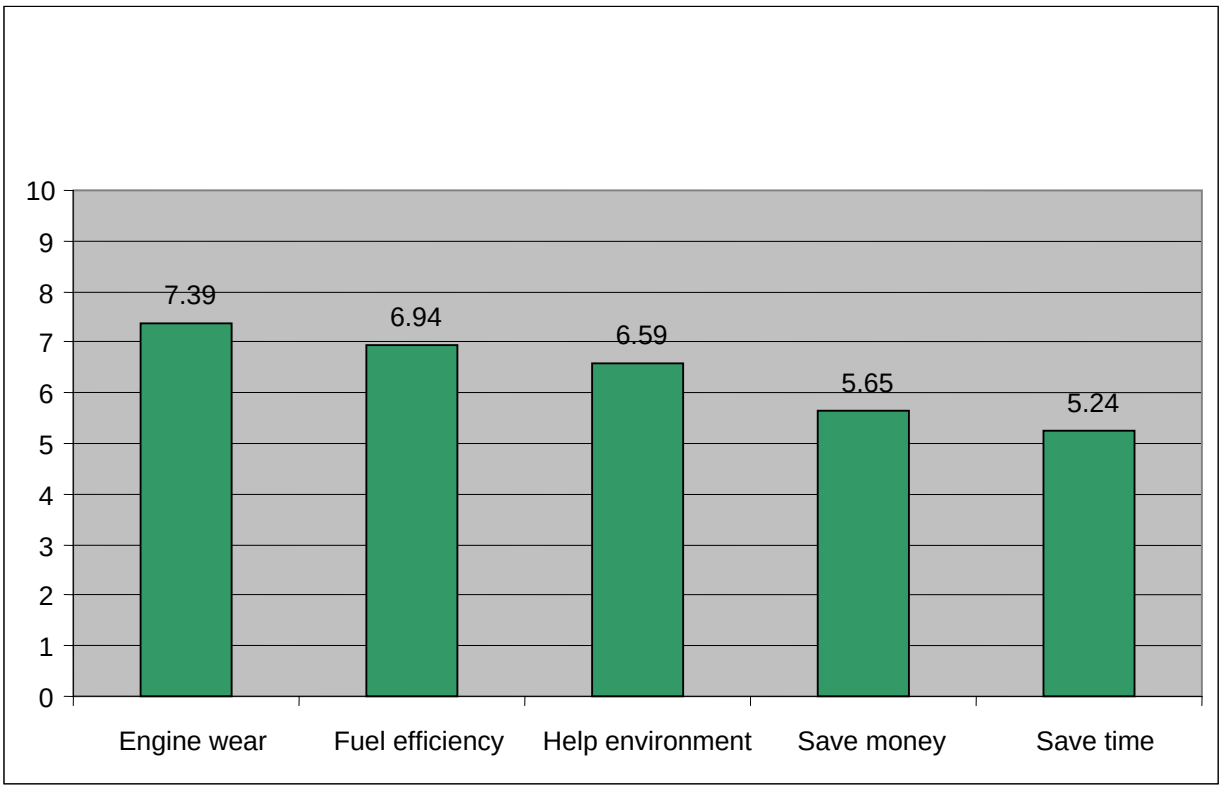
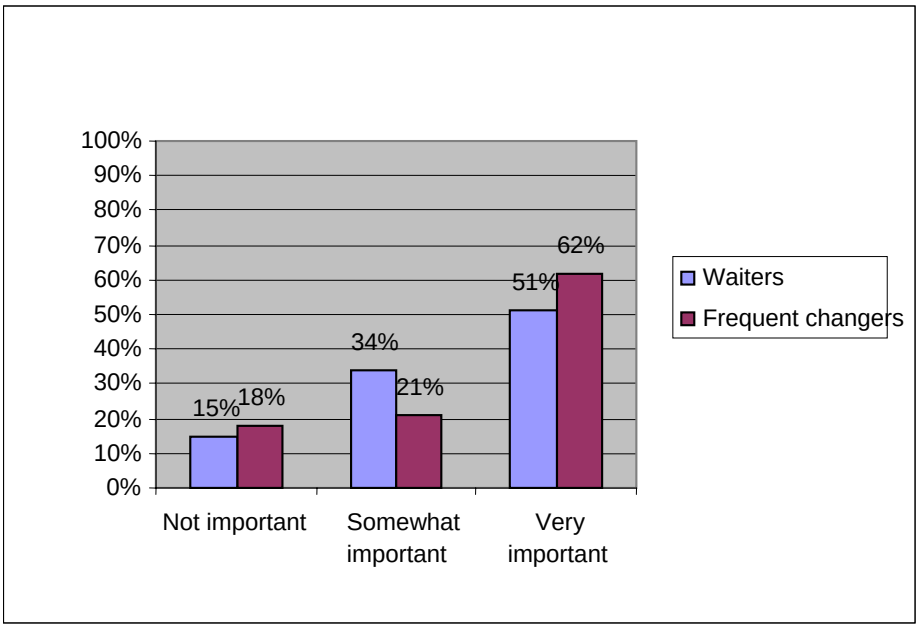


Table 6 and Chart 17 give the same information in different formats. In aggregate the single most important factor in people's decision to go longer was engine wear. Second, people were very likely to believe that going longer between changes hurts fuel efficiency.

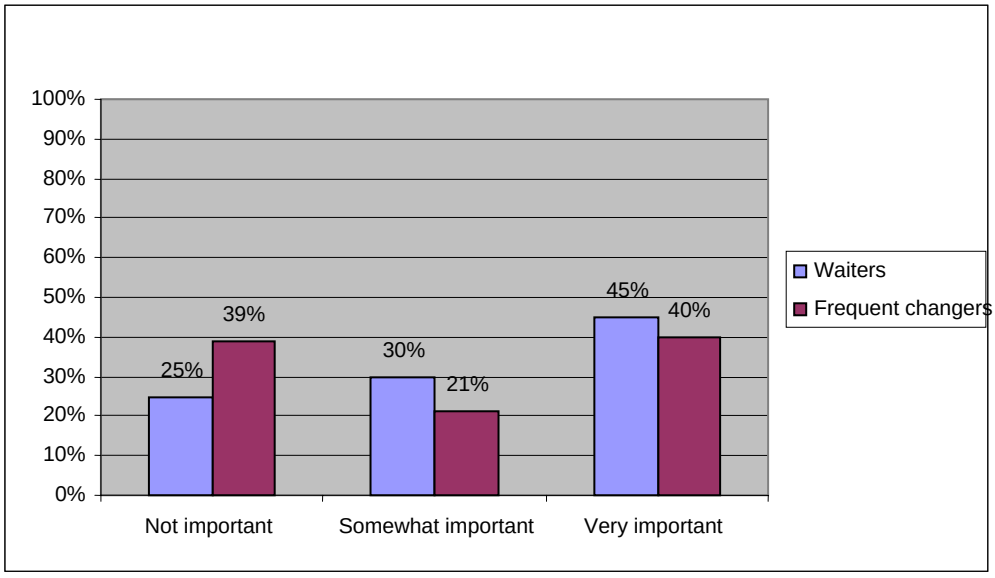
Looking at our two groups of drivers – Frequent Changers and Waiters, there were some statistically significant differences in how they rated these factors as shown below. As we presented above, for the next several charts, the importance ratings were grouped as follows: zero to four = "Not Important", five to seven = "Somewhat Important", and 8-10 = "Very Important."

Chart 18: Severe Changers by Engine Wear



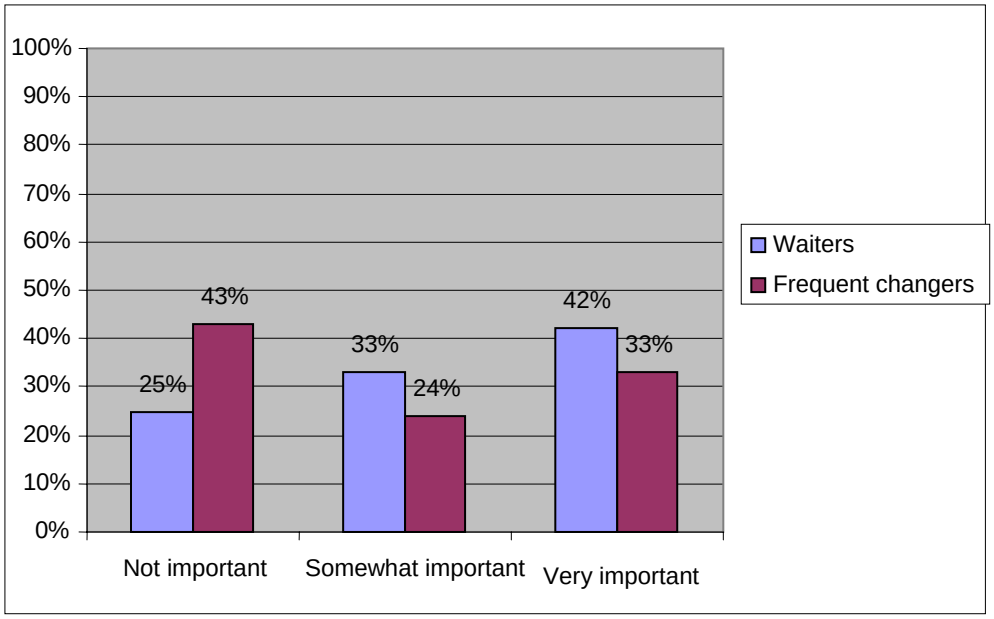
The greatest difference between Frequent Changers and Waiters observed was on the issue of engine wear. While the majority of both groups considered engine wear an important factor, Frequent Changers were more likely to consider it very important than Waiters.

Chart 19: Changers by Saving Money



Saving money was a very important factor for Waiters, and an unimportant factor for Frequent Changers. Thus, there are cost factors that impact people's behavior.

Chart 20: Changers by Saving Time



Similarly, saving time was a factor. Frequent Changers were more likely to consider saving time unimportant and Waiters were more likely to consider saving time very important.

For the other factors: helping the environment, and fuel efficiency, the differences between Frequent Changers and Waiters were not significant.

Table 7: Correlations Between Attitudes About Changing Oil and Actual Behavior

		Difference in Miles Between Actual and Recommended	Frequent Changers	Miles between Oil and Filter Change	Future Likelihood of Changing Oil Every 3,000 Miles	Importance of Fuel Efficiency	Importance of Increased Engine Wear	Importance of Helping the Environment	Importance of Saving Money	Importance of Saving Time
Difference in Miles Between Actual and Recommended	Pearson Correlation	1	-.613**	.777**	-.304**	-.108*	-.115*	-.007	.023	.031
	Sig. (2-tailed)		.000	.000	.000	.034	.023	.884	.657	.546
	N	400	400	400	395	384	393	383	387	386
Frequent Changers	Pearson Correlation	-.613**	1	-.491**	.364**	.109*	.163**	-.037	-.080	-.047
	Sig. (2-tailed)	.000		.000	.000	.032	.001	.470	.115	.361
	N	400	400	400	395	384	393	383	387	386
Miles between Oil and Filter Change	Pearson Correlation	.777**	-.491**	1	-.395**	-.126**	-.215**	.011	.024	.018
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.740	.481	.601
	N	400	400	880	869	844	864	850	860	854
Future Likelihood of Changing Oil Every 3,000 Miles	Pearson Correlation	-.304**	.364**	-.395**	1	.288**	.389**	.058	.012	.027
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.072	.702	.401
	N	395	395	869	983	946	968	950	958	951
Importance of Fuel Efficiency	Pearson Correlation	-.108*	.109*	-.126**	.288**	1	.537**	.427**	.312**	.256**
	Sig. (2-tailed)	.034	.032	.000	.000		.000	.000	.000	.000
	N	384	384	844	946	962	952	938	947	940
Importance of Increased Engine Wear	Pearson Correlation	-.115*	.163**	-.215**	.389**	.537**	1	.330**	.199**	.204**
	Sig. (2-tailed)	.023	.001	.000	.000	.000		.000	.000	.000
	N	393	393	864	968	952	983	950	959	954
Importance of Helping the Environment	Pearson Correlation	-.007	-.037	.011	.058	.427**	.330**	1	.439**	.425**
	Sig. (2-tailed)	.884	.470	.740	.072	.000	.000		.000	.000
	N	383	383	850	950	938	950	965	951	938
Importance of Saving Money	Pearson Correlation	.023	-.080	.024	.012	.312**	.199**	.439**	1	.550**
	Sig. (2-tailed)	.657	.115	.481	.702	.000	.000	.000		.000
	N	387	387	860	958	947	959	951	977	956
Importance of Saving Time	Pearson Correlation	.031	-.047	.018	.027	.256**	.204**	.425**	.550**	1
	Sig. (2-tailed)	.546	.361	.601	.401	.000	.000	.000	.000	
	N	386	386	854	951	940	954	938	956	969

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Concluding Observations—Telephone Survey

This section summarizes the findings from the above analysis by content area.

Oil Change Behavior

- Eighty-two percent (82%) of the sample had their oil changed by professionals.
- Men were more likely to do it themselves than women (24% vs. 13%).
- Manually transmission owners were twice as likely to be do-it-yourselfers as automatic owners (30% vs. 15%).
- Two thirds of the sample (66%) use window stickers to remind them of when to change their oil.
- However, nearly 4 in 10 (37%) report that they actually use the odometer (rather than the window sticker) to remind them about changing their oil.
- Yet, this varies by gender, with women more likely to rely on their window stickers than men and men more likely to rely on the odometer reading than women.
- Given these findings, it is clear that the oil change professionals have a great deal of power over how and when people change their oil. Assuming that it was the changing professional who placed the window stickers in people's cars, women were slightly more influenced by the professionals than men.

Oil Change Intervals

- The average number of miles between oil changes for the sample as a whole was 4,221 miles.
- However, driving severity and manufacturer's recommendations are extremely important. Results have to be measured by how they differ from manufacturer's recommendations to know if someone is an unnecessarily frequent changer or not.
- According to the definition of severe drivers, 17% of the sample were "normal" and 83% were "severe" drivers.
- For the 400 people where manufacturer's recommendations were known, the average driver was changing his or her oil at slightly less than 500 miles sooner than recommended.
- This frequent changing was even more pronounced for so-called "normal" drivers who average nearly 3,000 miles more frequent changing than recommended for their particular vehicle. Severe drivers adhered very close to the manufacturer's recommendations.
- Breaking down the 400 person sample by Frequent Changers (equal to or fewer miles than manufacturers' recommendations) vs. Waiters (more mileage than manufacturers'

recommendations), Frequent Changers make up 72.5% of the sample and Waiters make up 27.5% of the sample.

- Frequent Changers were – more likely to be women, more likely to be middle aged or seniors, more likely to use synthetic oils, more likely to drive imported cars, more likely to be "normal" drivers, more likely to use professional changers and more likely to have a windshield sticker.

Attitudes about Frequent Changing (Every 3,000 Miles)

- In general, people believe that it is very important to change one's oil every 3,000 miles, but that it is somewhat difficult to do so. They also indicated that their past behavior is likely to mirror their future behavior in regards to changing their oil.
- Frequent Changers are more likely than Waiters to consider changing their oil very difficult. This finding is interesting because it means that those who engage in the unwanted behavior (changing at or below manufacturer's recommendations) consider it more difficult than those who do the wanted behavior (waiting longer between changes).
- Looking at how the different attitudes related to each other, the strongest predictor of being a frequent oil changer was the intention of changing one's oil at 3,000 miles.

Most Important Factors Influencing Oil Change Behavior

- The factor of greatest concern was engine wear.
- The factor of least concern was saving time.
- Frequent Changers were more likely to be very concerned about engine wear than the Waiters.
- Saving money and saving time were more likely to be considered very important by Waiters than Frequent Changers.
- Examining how the different factors related to each other, the strongest predictor of whether a person changed his or her oil frequently was engine wear.

Part II—Designing and Testing Motivational Advertising

Introduction

Once the telephone survey was complete, the SBRI's second task was to design motivational advertising that would encourage people to drive longer between oil changes. Using the work of Wesley Schultz,[*] a central route to persuasion strategy was developed. The research team then used the results from the telephone survey to craft four versions of print advertisements that might be placed in magazines, in public places or displayed at points of purchase. The team pilot tested the initial mock-up, made changes, and then ran two formal focus groups.

This section of the report will describe the theory used in the marketing, the targets of the marketing and the testing process.

Attitude Change Theory

There are two routes to effective messaging – central route to persuasion and peripheral route to persuasion. The central route involves more effort and thought on the part of the person receiving the message. He or she gets the message and must either accept or reject the message based on pre-existing attitudes. The person's response is guided by thought and reason. On the other hand, the peripheral route relies more on images or quick reaction from the receiver without much thought on his or her part. Where the central route relies on argument or facts, the peripheral route relies on images or quickly digested messages.

As one might expect, a central route to persuasion involves a more permanent shift in attitudes and ultimately is more likely to result in behavior change. The research team reasoned that because the telephone survey showed a fairly strong belief among most consumers that a car's oil must be changed every 3,000 miles, a message to induce behavior change would require an appeal to the rational. On the other hand, the ads developed used colors, images and large fonts to draw the recipients in using a peripheral appeal as well. A more complete discussion of the ads themselves follows.

Advertising Design

One outcome of the telephone survey was the identification of the most receptive audience for changing attitudes. That is, the results showed that a particular group would be the most likely to be receptive to certain messages. These findings allowed the research team to develop marketing pieces for this particular audience that could be tested in focus groups. The target audience included the following attributes:

- Women (more likely to use the ubiquitous 3,000 mile sticker as a guide)
- Aged 35-60 (again, more likely to be frequent Changers)

[*] Oskamp, Stuart & Schultz, P. Wesley (2005). *Attitudes and Opinions* (3rd ed.) (See pp.260-261). Mahwah, New Jersey: Lawrence Erblaum Associates

- People who use oil change places or their dealers for oil changes
- Drivers of Accords, Camrys and Ford Escorts – these represented the most common cars on the road according to the telephone survey

The approach to creating the ads was to test certain messages using both a central and peripheral route to persuasion. The central route involved using charts of comparative statistics showing the difference between the average mileage driven by consumers and the actual recommendations provided by manufacturers. The peripheral route involved a message that triggered an emotional response and a picture that was likely to convey a sense of trust or confidence.

Three primary messages were developed:

1. Trust the Maker – This was a reference to the fact that the manufacturers generally recommend greater intervals than 3,000 miles between oil changes.

2. The 3,000 Mile Myth – This message appealed to the viewer's intelligence by attempting to "bust" the myth that oil needs to be changed every 3,000 miles or it will hurt your car.

3. You Can Do Better – This idea played on a message that many women receive through other kinds of advertising and cultural impacts. The intent was that going longer between oil changes meant better behavior and better outcomes for the environment.

The SBRI contracted with a local graphics firm to produce a draft ad concept for each of the above messages. A preview group of ten women were then surveyed about their reactions to the 3 ad concepts. The women were asked whether they found each ad convincing, whether they liked the title and color and whether they thought the ad might change their behavior.

The preview group rejected the "Trust the Maker " ad concept, believing the headline could possibly be offensive to religious people and the color pink was too stereotypical or juvenile. They also rejected the "You Can Do Better" ad concept, reporting that they felt insulted by or did not understand its message.

The preview group reacted positively to "The 3,000 Mile Myth" ad concept. Two versions of this ad were presented to the preview group. One version features a photo of an attractive, middle-aged woman holding out a set of car keys. The other version contains a photo of a young, clean-cut male car mechanic working on a car engine. Next to each of the photos are the words, "the 3,000 Mile Myth" in very large letters and the following messages:

- A recent research study shows that 73% of CA motorists can go longer between oil changes without affecting engine life or gas mileage.
- A table showing auto manufacturer oil change mileage recommendations for the 3 most owned vehicles in California compared to typical oil change mechanic recommendations
- Follow the recommended oil change mileage interval in your car owner's manual.
- Paid for by the California Integrated Waste Management Board (plus CIWMB logo)

The preview group was most positive about the approach – using real people to advocate going longer between oil changes. The preview group also responded positively to the concept of a peer or a trusted mechanic presenting the information. However, the preview group described the woman in the photo as "too pretty" or "too blonde." They also had concerns about the clothes

that the male model was wearing. Some of these issues were corrected by the graphic designers prior to subsequent testing of "the 3,000 Mile Myth" ads with the focus groups.

Two versions of an ad promoting the use of synthetic oil were also developed for testing with the focus groups. One version features a picture of a smiling, middle-aged woman sitting in her car with her hands on the steering wheel. The keys to the car are in her hand indicating that she is preparing to start driving. The other version contains a photo of a young, smiling male car mechanic standing by the open hood of a car holding a checklist. Next to each of them are the words "Drive Longer with Synthetic Oil" and a chart comparing the oil change frequency for petroleum oil (in miles) to that of synthetic oil for three of the most commonly owned vehicles in California. Each ad also conveys the following information:

- Synthetic oil reduces friction and engine wear, allowing you to drive longer between oil changes without affecting gas mileage or engine life.
- For a few extra dollars, synthetic oil allows you to go much longer between oil changes.
- Paid for by the California Integrated Waste Management Board (plus CIWMB logo)

Focus Group Method

Focus groups were proposed for this project to test the concepts and ads generated from the telephone survey. The intention was to get a representative mix of groups – rural and urban, Northern California and Southern California, and coastal & inland. Due to a limited budget, only two groups were scheduled, one in San Diego (urban, coastal, Southern) and one in Sacramento (rural, inland, Northern). The problem with one group in each area is that it is difficult to really compare the results. Thus, the results presented in this report are directional in nature (as are any focus groups results) and should not be misinterpreted as a representative sample of public opinion across the state.

Professional focus group facilities were selected to conduct the groups; Taylor Research in San Diego, and Elliott Benson in Sacramento. Both facilities are well respected and used extensively for focus groups by governments, non-profits, and private industry. The advantage to this project in using facilities was that participants were pre-screened as good focus group participants. That is, people came prepared to participate and often were familiar with the conventions of focus groups, like two-way mirrors, audio/video taping, moderators and how to act in a group discussion. The disadvantage was that, while cooperative, pre-screened participants may not necessarily be representative of the attitudes of the "average person."

The focus group participants were recruited from the target audience identified during the survey research. Thus, all participants were women, between 30-60 years old, who regularly change their oil at either professional change stores or car dealerships. The focus groups were recruited using the screener script included in Appendix B, Focus Group Documents.

The SBRI submitted a focus group discussion guide to the CIWMB. The discussion guide was not a script, but rather served to frame the discussion for the group and keep the moderator on track. This Guide is also included in Appendix **B**.

The order shown on the discussion guide reflects the order of presentation to each of the participants. Each participant received the ads in a plain manila folder and each ad was reproduced as a glossy 81/2 x 11 inch page.

Each group discussion lasted one and one half hours and was both audio and video taped. The results of the focus groups are summarized in the following section of this report.

Focus Group Results

The SBRI conducted two groups:

- San Diego – Urban, coastal, southern – 11 women participated, aged 32 to 59
- Sacramento – Rural, inland, northern – 11 women participated, aged 30 to 58

The group discussions were lively and spirited. Both groups followed a similar order of participation. First, the participants were consumers, thinking about their experiences having their oil changed. Second, they were advertising viewers reacting to the print ads presented to them. Third they became design critics, discussing what was most effective and least effective, making very specific recommendations. Finally, both groups experienced advertising fatigue. They became bored with the concept or discussed wanting to change the whole approach.

For this section of the report, we examine each of the focus group questions and the two groups' reactions to the issues. It is important to remember that all participants were selected partially by the fact that they took their cars to either the dealership where they bought it or a quick oil change store for routine maintenance. Quotes will be included where appropriate.

Importance of Auto Maintenance

Car is essential – Both groups started out by saying that the car is really the only reliable means of transportation, so the car becomes the lifeline.

San Diego comments:

> *"Not having a reliable car is a bummer!"*
>
> *"Especially with kids…with all of my errands and commuting to and from work, it's not unusual for me to drive 150 miles per day."*
>
> *"Because we do so much driving here in San Diego on the freeway, the likelihood is that we'll breakdown on the freeway and that's really scary and why maintenance is so important."*

Safety & Security – Quickly though, the issue that came up was safety and security. It surprised the male moderator of the groups, but unanimously women worry most about a break down, and the danger to the personal safety that the being alone in a disabled car could pose to them. Maintenance of their cars meant not having to worry that they would be caught off-guard.

Saving money – The next concern, raised in both groups with almost the same immediacy as personal safety was the idea that by maintaining your car on a regular basis, you save money in repairs.

> *"I have a nine year old Honda Civic that only has 65,000 miles on it, but I follow the maintenance schedule to the letter and I plan to drive it until the doors fall off because I want it to last." – Sacramento*

"I think people learn the hard way by trashing their first couple of cars. I remember my first boyfriend said, 'What do you mean, you never change the oil?' and, I said, 'Well, why? It isn't like it's broken or anything." – San Diego

A related concern was that auto maintenance itself is financially risky for women because they fear being ripped off by mechanics. They thought that women represented easy targets.

"They always rip you off, and they do it because I'm a woman, I can give you twenty different examples." – Sacramento

On the other hand, one participant suggested that car dealer maintenance was more scrupulous.

"I disagree completely, I take my car to the Honda Dealer and I completely trust their mechanics to honestly tell me what I need to be doing."

"I agree if it's a dealership." (both comments Sacramento)

How we know when it is time, and what to do – The moderator asked whether the car maintenance was more of a "guy thing" or if the women participants make the decisions about when and how to change their oil and get other maintenance.

"I'm embarrassed to say this, but my husband does everything" – San Diego

"My dad drilled it into my head, always check your oil." – San Diego

"I listen to my mechanic." – Sacramento

"I listen to the dealer who said change it every 2,000 miles, even though the manual says every 3,000 miles." -- Sacramento

Next, the groups discussed how they know when it is time to change. Many reported that they rely on the sticker on the windshield to remind them. Others reported that the dealer or oil change place will send a reminder (presumably based on the number of months since the last change). Others reported that their cars had built-in systems that reminded them – a warning light of some kind. The rural group tended to drive less than the urban group, and therefore changed their oil less frequently. Almost no one in the rural group knew the actual interval that they were going between changes for a variety of reasons:

Sacramento comments:

"When the oil light comes on, that's when I do it."

"My husband keeps track, he always takes it in."

"I don't rely on my husband to do anything with the car, because if he had his way, it would be like once a year. I go every three months, even if that's too frequently, that's okay."

Everyone in San Diego agreed unanimously that drivers should change the oil on her car every 3,000 miles. Some noted that their manuals recommended 5,000, but that they felt it was better for their cars to change every 3,000 miles or every three months.

Note that the focus groups reflected the results from the statewide survey. Drivers believe that 3,000 miles is generally the distance at which a person should change his or her oil, and that the primary reason for this frequency is reduced engine wear or loss of use.

Exploring the Idea of Going Longer Between Changes

The moderator asked, "What does it feel like if I say you can go longer than your sticker indicates or the light on your car indicates between oil changes." Reactions were mixed:

"I wouldn't go over that light on the car, uh, uh, when that light's on and the time's up, it's up." – Sacramento

"I was told by the service manager at the dealer that I could go up to 5,000 miles." – Sacramento

"I just got a Ford Escape hybrid and I checked the manual and it says I don't have to change the oil more than every 10,000 miles. My husband doesn't believe me, he's going to call the manufacturer." -- San Diego

"My husband always says that you need to change your oil frequently because all of the particles in the oil cause wear and tear on the car." – San Diego

"I'm afraid it would affect my gas mileage or my tires." – San Diego

"I always do go longer, I think that the sticker is just trying to get me to take it in more often so that they can make more money." – Sacramento

Interestingly, among the San Diego group, many of whom had hands-on experience with changing their own oil, there was a suspicion that the need to change the oil every 3,000 miles was exaggerated.

At the moderator's prompting about positive reasons to go longer between changes, the Sacramento group listed saving money, saving time, and one respondent recognized the environmental impact.

"If we ALL changed our oil less frequently, then there would be less oil used and there would be less oil to get rid of from the system." -- Sacramento

Reaction to the "3,000 Mile Myth" Advertisements

Next, the moderator showed the "3,000 Mile Myth" advertisements to the groups. For the San Diego group, he showed the advertisement with the woman first, and for the Sacramento group he showed the advertisement with the man/mechanic first. The change was prompted by the researchers' experiences in San Diego (the first group). Their reaction was so positive with the first ad and much more negative with the second ad, the researchers wanted to know if the order of how the ads were presented made a difference. As the comments below indicate, the presentation order definitely made a difference between the two groups. However, other things were going on as well.

Reactions to Ad with the Woman (presented first) – San Diego

The first comment uttered was "oh no," as the person realized she may have been changing her oil too frequently. Some other first reactions included:

"*This ad shows that women can depend on themselves."*

"*What about my warranty? Will going longer affect that?"*

"*This ad is very believable."*

"My car is not on this list, you just have the cars that most people drive, but the ad doesn't really apply to me, does it?"

"Doesn't it really depend on the kind of driving you do and where you do the driving?"

"I like the fact that she's an older woman. I'd like at this ad before I would look at one with a man on it. She looks like someone I could go to Starbuck's with."

Many of the participants said that they found the ad comforting, that it confirmed their suspicions about driving longer between changes. Others suggested that the ad generated questions and made them want to investigate the issue further. They pointed out that the ad says, "a recent study" but it does not give the study's results. They were disappointed that there was no website for more information listed on the ad. There was the general sense that people were not necessarily going to stop changing at 3,000 miles, but that it raises good questions.

"I like that the ad is sponsored by the Integrated Waste Management Board. It makes me trust the information more than if this was coming from the auto dealers or the oil companies."

In general, the San Diego participants liked the soft colors, the muted tone and the fact that the spokesperson was a woman. They found the ad non-aggressive and challenging to their intellect. One person said that, "it reminds me of a breast cancer awareness ad," but she did not mean that in a negative way, rather, she found it a bit inspiring. Participants remarked that they could trust the spokesperson in the ad. They felt that the ad was a strong message to get them to recycle their used oil.

The group members had some negative reactions as well. The primary negative reaction was that the list of cars was too narrowly drawn. They were curious if the findings applied to SUV's, van's and "less fuel efficient" cars.

Reactions to the Ad with the Woman (presented second) -- Sacramento

The first two reactions were positive and negative. The first negative reaction was that the woman seemed too helpless.

"She just seems to be saying, 'Oh I can't deal with this, here are the keys."

Others echoed this sentiment:

"It's her hair" [laughter].

"She's just old and helpless."

The other reaction was very positive, *"Oh I much prefer this ad to the other one [the mechanic]."*

The nay sayers were much more vocal:

"I don't trust her statement; how does she know that it doesn't hurt her engine to drive longer."

"The way she looks doesn't match what she's saying. She doesn't look like she is an expert or that she knows what she is saying."

"I just want to shake her! Does she need therapy?" For this participant, there was an immediate dislike of the character in the ad. She felt that the ad contributed to a negative view of women as helpless or clueless when it comes to auto maintenance.

Other comments were more positive:

"Because this ad shows a woman, this is one that I would think has a message for me as a reader as opposed to the ad with the mechanic which seems more aimed at men."

"This ad I would look at, oh, maybe she has a message for me."

"This ad seems softer, more muted and her personality comes through."

The group also echoed the concern raised in San Diego that the list was too narrowly focused on a certain kind of car. There was also the question about older versus newer cars. Several members of the group felt that the message only applied to newer cars, but that older cars needed more frequent changes.

Reactions to the Ad with the Man/Mechanic (presented second) – San Diego

Participants were encouraged to look at the ad more for its own merits and not leap to comparisons. However, the immediate reaction to the ad with the mechanic was negative. The initial word that emerged was "forceful." Some comments were:

"I would walk away from this ad."

"This looks like my husband telling me what to do."

"I don't want to hear this from him."

Some of the participants felt that the ad did not make sense. They saw that the mechanic's interest was served by more frequent changes. They wondered why he would encourage them to drive longer if it meant he would lose money. It made some participants nervous, that he had some kind of ulterior motive. They mentioned that he might be trying to fool them to make more money on larger repairs down the road.

The participants felt that this kind of ad (one where someone was going against his interests) should be more extreme – the attendant should have money coming out of his pockets and really looking like he is taking you for a ride. They felt that the character was hiding something, but it was not overt enough. He was not disreputable enough.

Most of the comments were directed at the model's appearance. They felt that this mechanic looked too young and too inexperienced to be trusted. They felt that he looked "too clean" as though he was not really working under the hood and getting dirty. Some of the younger participants found the mechanic "cute" and "eye-catching."

"The whole ad is an oxymoron. He's recommending going longer, but the oil change shops don't."

"He looks smarmy. He's smirking. I've gotcha!"

"He's just a kid trying to earn a buck."

The remainder of the comments were similar to the comments on the ad with the woman. Participants were disappointed that there was not more information about the research conducted. They again stressed the point that they wanted a website to go to for more information.

Participants also suggested that the female ad would appeal more to women, but the male ad might appeal more to men. Others disagreed saying that their husbands or boyfriends would rather look at the woman ad. One participant suggested that the man would be more convincing if he were not a professional, but just a neighbor in street clothes giving us advice – a do-it-yourselfer. Several members of the group felt that a male figure with more authority – such as a sports figure or celebrity – might carry more weight with a male audience. As the women participants became more critical of this ad, they became harsher in their sentiments:

"This is the wrong man."

Reactions to the Ad with the Man/Mechanic (presented first) – Sacramento

First reactions to the ad included some of the following comments:

"Looks like they're selling Hondas and Camrys."

"Is this true?"

"I've always known this, but I still go at 3,000 miles, I don't know why."

"Is this for all cars, or just new cars?"

Most participants found the ad convincing. Unlike in San Diego, their initial reaction to the model was positive (or perhaps less negative.)

"He looks kind of sly."

"He's cute. He looks like my son. But that's a problem ***he looks like my son****."*

"He looks nice to me. The boy next door."

"I would trust him."

On the other hand, others felt that he was too young, and too clean.

"I'm less convinced by the mechanic than the person who I deal with, the service manager, or the professional."

Like the San Diego group (who saw the woman first) the Sacramento group centered in on the ad's sponsorship.

"I think it ads a lot of credibility to show that the ad is sponsored by the Integrated Waste Management Board and the message, 'Recycle Used Oil' makes me think that it's better for the environment to change my oil less."

In terms of the design of the ad, some found the color distasteful, others loved it. One respondent felt that the color would make her just want to throw it in the trash. Another respondent reported that she was more drawn to the information presented in the table rather than the picture of the person.

General Impressions about the Reactions to the "3,000 Mile Myth" Ads

It is unfortunate that the budget did not allow for more focus groups. The two groups reacted in opposite ways to the two ads when they were presented in opposite order. It is difficult to explain the divergence between the two groups. One hypothesis is that there was an arc of appreciation of the ads: at first, participants were engaged with the information and surprised by the findings; as their trust increased, they saw the picture and were drawn in; as they began to realize that the ad challenged their own ideas and behaviors, they became less trusting and more critical. By the time each group saw the second ad, they had questions and doubts about the information. The picture on the second page became a symbol of doubt and mistrust in direct opposition to the picture on the first page which symbolized newness and appealing presentation. Yet, these ideas would need further testing to be confirmed.

In general, some main findings held true for both groups:

On the positive side:

- The information was believable and represented a clear call to action
- Showing the sponsorship (CIWMB) provided credibility
- Participants were motivated to find out more about the issue and perhaps change their behavior
- The design of the ads was generally appealing and was met with mostly positive reviews
- Participants wanted more information – more data or a place where they could go to get the study results

On the negative side:

- Participants became skeptical about the information the longer they studied it
- The presentation of the data was too focused on "efficient" cars
- Since the model years were omitted, participants felt that perhaps only newer cars could go longer between changes
- Participants saw the environmental benefits, but planned on maintaining their frequent changes to be "on the safe side" or to "maintain their warranties."

Reaction to the "Drive Longer with Synthetic Oil" Advertisements

Next the moderator showed the "Drive Longer with Synthetic Oil" advertisements to the groups. As with the other ad, the moderator showed the woman version first to the San Diego group and the man version first to the Sacramento group.

Reactions to the Ad with the Woman (presented first) – San Diego

The moderator prepped this group with a brief discussion about synthetic oil. The consensus of the group was that if it was not too much more expensive, they might use it. Upon seeing the ad, the first reactions were negative to the color change. On the other hand, they liked the look of the picture better.

"She looks better in the brown."

"She looks ten years younger."

The participants were distracted by the keys in the woman's hand. They thought that the key in her hand, as opposed to the ignition was silly. They felt that the key in her hand conveyed incompetence. One person said:

"Here (in the first ad) she's offering me advice, and here (the other ad) she looks like she doesn't know what she's talking about."

They reacted very positively to the fact that there was a website to go to find the better mileage of your car using synthetic oil.

Contrary to the previous ads, there was less initial trust. The participants were not sure that the mileage claims were believable. One woman said that she was sure that this was not true for older cars. Another person suggested that the ad looked like the sixties. She said that the color and the way the woman looked were too out of date for the new message she was conveying.

However, once the participants moved past the picture, they felt that the information presented was more informative and more appealing. They were particularly excited by the fact that there was a website where they could check their own cars. One participant was discouraged, though, that this website was a Mobil Oil website and thus, was less trustworthy than a CIWMB site might be.

This group also caught two problems with the text. The chart says "petroleum oil" and "synthetic," and they correctly pointed out that the chart should also say "synthetic oil." In addition the text that says, "Visit www.mobiloil.com to find your cars (sic) synthetic…" should have an apostrophe before the "s" in "cars."

In terms of design, the group was adamant that the brown color was much less appealing the blue of the previous ads.

Reactions to the Ad with the Woman (presented second) – Sacramento

As with the first ad, these participants viewed the man/mechanic version of the ad prior to seeing the woman; however, for comparison purposes, we will present the findings from the woman version first for Sacramento.

The first reactions were to the picture:

"Why is she driving with the key in her hand?"

"Her hair's not messy in this one."

"Helpless woman with the key, I don't see the key in the man's hand."

"What does the key placement say about the poor woman, does she not know how to drive?"

The participants found the key very distracting. Their suggestions were good: people never hold the key in their left hand while sitting in a car; put the key in her right hand, no key at all, have her standing outside getting into the car. Each of these suggestions was preferable for this group than the current photo.

Since the group had already critiqued the comment in the first presentation, they focused on design. They strongly preferred the placement of the table and information on the left side with the photo on the right side. They liked the fact that she was sharing her experience rather than purporting to be an expert on the subject of auto maintenance.

Reactions to the Ad with the Man/Mechanic (presented second) – San Diego

Initial comments about the ad included:

"This really looks like the old Texaco ads."

"It looks like he's saying, do you want fries with that."

"He's so clean-shaven, and so clean, he never touched my oil."

"He looks too much like the Jiffy Lube guys, so why would he recommend this?"

The moderator pointed out that the participants were looking for a more trustworthy mechanic, and they did not think this picture conveyed that.

"He's not believable."

"No one, nowadays gets up and has his uniform pressed like that unless he's in the Navy or an officer of the law."

There was also concern about the color. The participants preferred the blue ads to the sepia.

Reactions to the Ad with the Man/Mechanic (presented first) – Sacramento

Because the man was presented first, the participants took in the new concept of the synthetic oil ad and the new color (sepia) for the first time.

"I like the color, it's warmer."

"I still don't like the hat. You couldn't even tell what it was in the first ad."

"I like the blue better because it's more clean to me, this is more of a dirty look."

"I'd like to see more color in the chart. I'm distracted by the color in the picture and the chart needs something to liven it up."

"Another found the font of the charts too dark."

One participant found the ad more inviting than the previous ads. She liked the use of color and the way it was laid out. Another felt that the ad needed stronger endorsement from companies she trusted like car companies. On the other hand, a different participant found the blue much more inviting and soothing to the eye.

With respect to the message, one participant felt that the ad was targeted at the desire to save money, and that this money-saving approach needs more of a feature. Others disagreed. Another participant felt that going longer meant greater convenience because she would have to visit the mechanic less often. Another participant was confused. She wondered if the point was that we are saving money or saving the environment. She wondered why it matters that a person should use synthetic oil. The website for more information was stated as useful by one member; however, there was not the same need for the web-based information that the San Diego group expressed.

Was the ad convincing? Generally, participants felt that it was not. It might send people to check out "synthetic oil" on Google. Some said that they would talk to their husbands or mechanics. What about other maintenance, should we still go longer?

Comparing the "Drive Longer with Synthetic Oil" Ads (both groups)

The Sacramento group preferred the ad with the woman to the ad with the man. One participant said it was not because she was a woman, but because of the layout of the ad with the chart on the left. Someone else didn't like the "kid's smirk." On the other hand, several group members liked the man better, they felt he was more attractive and trustworthy.

In San Diego, one woman felt that this was exciting news and wanted to see how much more expensive the oil was. There was concern about real cost savings. This group seemed open to switching to synthetic, but wanted more information. Is it safe? Are they just trying to get us to switch to help their bottom line?

One participant in San Diego, an amateur mechanic, was particularly drawn to synthetic oil for older cars. She felt that it was better for older cars, older than 15 years.

One Sacramento group member was disappointed with the name, "synthetic." To her, it "sounded like synthetic chicken, I won't buy that." Similarly in San Diego, one participant didn't want to buy synthetic oil said that it "reminded her of polyester." She was worried that it synthetic oil would not break down in the same way. The concern was discussed in the group about how it is disposed of.

Reactions overall varied in Sacramento:

> *"I could care less if it was a man or a woman."*
>
> *"On this one, I stopped because it was a woman, on this one, I stopped because of the chart."*
>
> *"The idea of synthetic oil was not exciting for me, but I did like the '3,000 mile myth,' they could use the same slogan. You could combine the two messages."*
>
> *"I liked the 'myth busters' message better."*

In San Diego, the group was so negative about the man and so positive about the woman that their views about the first ads bled into the second.

General Impressions about the Reactions to the "Driver Longer with Synthetic Oil" ads

Whether it was the subject matter or the lateness of the topic in the focus groups, synthetic oil received more of a yawn response from the participants. They were happy to criticize the ads, but there was not the sense that they were really intrigued by the message or drawn in. In fact, some suggested that the two ads be combined, clearly preferring the 3,000 mile myth idea to "driving longer."

Participants were more resistant to the idea that they could actually go longer with synthetic oil. They became concerned about safety, about the life of their cars, and about the trustworthiness of the information. They were motivated to find out more; however, there was no sense that these ads would motivate a change to synthetics.

Appendix A: Telephone Survey Instrument

CIWMB Oil Change Survey

<SQHELLO>

Hello, my name is _____. I'm calling on behalf of the California Integrated Waste Management Board to conduct a brief survey on automobile care and we'd like to include your opinions. I'm calling from the SBRI survey lab at California State University San Marcos.

[PRESS 1 TO CONTINUE IN ENGLISH]

[PRESS 2 FOR CALLBACK/REFUSAL/OTHER]

<Mid-Interview Callback>

Hello, my name is _____ and I'm calling from the SBRI Survey Lab at Cal State University San Marcos. We spoke recently with someone at this number, and I was calling back to see if we could finish our survey.

Is [CONTACT PERSON] AVAILABLE?

[PRESS 1 TO CONTINUE IN ENGLISH]

[PRESS 2 FOR CALLBACK/REFUSAL/OTHER]

<QUAL2> Are you a California Resident?

[IF NOT, ASK IF THERE IS ANYONE ELSE IN THE HOUSEHOLD THAT IS A CALIFORNIA RESIDENT]

[PRESS 1 TO CONTINUE]

[PRESS 2 FOR CALLBACK/REFUSAL/OTHER]

<QUAL1> Are you at least 18 years of age or older?

[IF NO, ASK TO SPEAK WITH SOMEONE WHO IS 18 YEARS OR OLDER]

[PRESS 1 TO CONTINUE]

[PRESS 2 FOR CALLBACK/REFUSAL/OTHER]

<QUAL3> Do you have an automobile?

0. NO

1. YES

[IF **NO**, ASK IF THERE IS ANYONE ELSE IN THE HOUSEHOLD THAT IS ANOTHER ADULT HOUEHOLD MEMBER WHO HAS AN AUTOMOBILE.]

<QUAL4> I'd like to ask you some questions about the care and maintenance of this vehicle.

[PRESS X TO CONTINUE]

[IF **THEY ARE UNABLE TO ANSWER THESE QUESTIONS**, ASK IF THERE IS ANOTHER ADULT HOUSEHOLD MEMBER WHO CAN TALK ABOUT THE CARE AND MAINTENANCE OF THE VEHICLE]

<SINTRO1> Our survey will take less than ten minutes and your participation is voluntary. The answers you give will be kept strictly confidential and you may stop the interview at any time. I am also required to let you know that this call may be monitored for quality control purposes. May we continue?

<SINTRO2> For the questions in this survey, please answer based on the vehicle that you drive most often.

<Q1> Do you own this car, or do you lease it?

1. OWN
2. LEASE

8. DON'T KNOW
9. REFUSED

<Q2A> What is the Make of that car?

[CHOOSE ANSWER FROM LIST OF MANUFACTURERS]

[FALLBACK: The 'make' of your car is the brand of car. For example, Toyota, BMW, Dodge, Subaru, etc.]

<Q2B> What is the Model of that car? [OPEN-ENDED TEXT ANSWER]

[NOTE: If respondent is unsure about the exact model and gives more than one, please ask them to choose one.]

<Q2C> What year was the car made?

[NUMERIC ANWSER BOX]

[NOTE: If the respondent is not certain about the exact year, ask them to provide a best guess.]

<Q2D> Does the car have a manual or automatic transmission?

1. MANUAL
2. AUTOMATIC

8. DON'T KNOW

9. REFUSED

<ICQ2> So that vehicle is a:

[SHOW YEAR/Q3C]

[SHOW MAKE/Q3A]

[SHOW MODEL/Q3B]

With a [MANUAL OR AUTOMATIC/Q3D] transmission?

1. YES [CONTINUE]

2. NO [SKIP TO Q2A TO CHECK ANSWERS]

<Q3> Who typically changes the oil and filter on this car?

[READ ALL, CHOOSE ONE]

1. DO-IT YOURSELF
2. FRIEND OR FAMILY MEMBER
3. "QUICK LUBE" SPECIALTY SHOP
4. OTHER AUTO REPAIR SHOP
5. CAR DEALER
6. OTHER [SPECIFY: _____]

8. DON'T KNOW
9. REFUSED

<Q4> Do you use natural or synthetic motor oils?

1. NATURAL
2. SYNTHETIC

8. DON'T KNOW
9. REFUSED

<Q5> On average, how many miles do you go between oil and filter changes?

_____ MILES

[PROBE FOR A SINGLE NUMBER - CHOOSE MIDPOINT OF RANGES]

99998 – DON'T KNOW

99999 - REFUSED

<Q6> In miles, how often do you think your oil and filter **should** be changed?

_____ MILES

[PROBE FOR A SINGLE NUMBER - CHOOSE MIDPOINT OF RANGES]

99998 – DON'T KNOW

99999 – REFUSED

<Q7> How do you know when it is time to change the oil and filter in your car?

[DO NOT READ, CHOOSE ONE]

1. WINDOW REMINDER STICKER
2. VEHICLE OIL MONITORING SYSTEM (GM, MINI)
3. OTHER REMINDER (MAILING, CALL, ETC.)
4. WHEN IT HAS BEEN XXXX MILES SINCE LAST OIL CHANGE
5. OTHER [SPECIFY: _____]

8. DON'T KNOW
9. REFUSED

[INTERVIEWER, IF RESP SAYS "WHEN THE LIGHT COMES ON," USE THIS PROMPT: Are you referring to the oil warning light, or to the vehicle monitoring system light that tells you when it's time to change your oil?]

<Q8> Do you currently have an oil change sticker on your windshield?

1. YES
2. NO

8. DON'T KNOW
9. REFUSED

<T9> Some oil companies recommend changing the oil and filter in your car every 3,000 miles…
[RANDOMIZE Q9A – Q9E]

<Q9A> On a scale from 0 to 10, with zero being **very easy** and ten being **very difficult**, how difficult would it be to change your motor oil every 3,000 miles?

<Q9B> On a scale from 0 to 10, with 0 being **not at all important** and 10 being **extremely important**, how important is it to change your motor oil every 3,000 miles?

<Q9C> On a scale from 0 to 10, with 0 being **none** and 10 being **all**, how many **other**

people do you think change their motor oil every 3,000 miles?

<Q9D> On a scale from 0 to 10, with 0 being **never** and 10 being **always**, in the past how often have **you** changed your motor oil every 3,000 miles?

<Q9E> On a scale from 0 to 10, with 0 being **definitely will not** and 10 being **definitely will,** how likely is it that you will change your engine oil every 3,000 miles in the future?

<T10> I am going to read a series of statements to you about the possible effects of waiting longer between oil changes. We want to understand the impact these factors have on your decision to change your oil. Keeping in mind there are no right or wrong answers, please tell me how important each of the following is to you on a scale of 0 to 10, where zero is not at all important, and ten is very important. [RANDOMIZE Q10A – Q10E]

<Q10A> How important to you is it that going longer between oil changes decreases fuel efficiency.

_____ NUMBER 0-10

98 – DON'T KNOW

99 – REFUSED

<Q10B> How important to you is it that going longer between oil changes increases engine wear.

_____ NUMBER 0-10

98 – DON'T KNOW

99 - REFUSED

<Q10C> How important to you is it that going longer between oil changes helps the environment.

_____ NUMBER 0-10

98 – DON'T KNOW

99 - REFUSED

<Q10D> How important to you is it that going longer between oil changes saves money.

_____ NUMBER 0-10

98 – DON'T KNOW

99 - REFUSED

<Q10E> How important to you is it that going longer between oil changes saves time.

_____ NUMBER 0-10

98 – DON'T KNOW

99 - REFUSED

<Q11> Are there other effects of going longer between oil changes that I have not mentioned.

[OPEN-ENDED TEXT ANSWER]

<T12> Now I have a few questions for you about some of the conditions in which you drive. For each condition that I mention, please tell me whether you do this type of driving in a typical week. [RANDOMIZE Q14A-Q14G]

<Q12a> In a typical week, do you drive on dusty roads?

1. YES
2. NO
8. DON'T KNOW
9. REFUSED

[REPEAT ANSWER CHOICES IN Q14A – Q14G]

<Q12B> In a typical week, do you drive with extensive idling or in stop-and-go driving?

<Q12C> In a typical week, do you drive in extreme cold weather, less than 10^{o}?

<Q12D> In a typical week, do you drive in extreme heat, more than 90^{o}?

<Q12E> In a typical week, do you drive in extreme humidity?

<Q12F> In a typical week, do you drive repeated short-distance trips, less than 5miles?

<Q12G> In a typical week, do you tow a trailer or car top carrier?

[FALLBACK: "car top carriers" are cargo bags that attach to the roof of most any vehicle, with or without a luggage roof rack.]

My last few questions are for classification purposes only.

Q13. In what year were you born? _____

Q14. How many people currently live in your household? _____

Q15. Are you of Hispanic or Latino origin?

1. YES
2. NO
8. DON'T KNOW
9. REFUSED

Q16. How would you describe your racial background?

[DO NOT READ]

1. AMERICAN INDIAN AND ALASKA NATIVE
2. ASIAN
3. BLACK OR AFRICAN AMERICAN
4. HISPANIC OR LATINO
5. NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER
6. WHITE
7. MULTIRACIAL
8. OTHER [SPECIFY]: _____
98. DON'T KNOW
99. REFUSED

Q17. What is the highest grade or year of school you completed?

[READ ALL, CHOOSE ONE]

1. NEVER ATTENDED SCHOOL OR ONLY ATTENDED KINDERGARTEN
2. GRADES 1 THROUGH 8 (ELEMENTARY)
3. GRADES 9 THROUGH 11 (SOME HIGH SCHOOL)
4. GRADE 12 OR GED (HIGH SCHOOL GRADUATE)
5. COLLEGE 1 YEAR TO 3 YEARS (SOME COLLEGE OR TECHNICAL SCHOOL)
6. COLLEGE 4 YEARS OR MORE (COLLEGE GRADUATE)
7. GRADUATE SCHOOL
8. DON'T KNOW
9. REFUSED

<QCLOSE> Those are all the questions I have for you. Thank you for your time and your assistance with this research.

<ICGENDER> INTERVIEWER – CODE RESPONDENT'S GENDER AS:

1. MALE
2. FEMALE

Appendix B: Focus Group Documents

Focus Group Screener

Hello, I'm calling on behalf of the State of California's Integrated Waste Management Board and we are conducting focus groups on how people change the oil in their car, may speak to _____?

1. (Only recruit women)

2. Where do you have your car oil changed?

   a. Do it myself ➔ Skip to Close
   b. Friend/Boyfriend/Husband changes it ➔ Skip to Close
   c. Take to oil change place (Jiffy Lube, Tune-up Masters, etc.) ➔ Continue
   d. Take it to the place where I bought my car (dealer) ➔ Continue

3. How do you know when it's time to change the oil in your car?

   a. Window sticker reminder ➔ Continue
   b. I keep track of the mileage ➔ Skip to Close
   c. I mark the date on my calendar ➔ Skip to Close
   d. The car's service reminder light comes on ➔ Continue
   e. Other ➔ Skip to Close

4. Can I ask your age?

   a. If greater than 30, but less than 60 ➔ Continue
   b. If other age ➔ Skip to Close

5. What city do you live in?

a. If San Diego ➔ Continue

b. If not ➔ Skip to Close

6. INVITE THEM TO PARTICIPATE – GIVE SCHEDULE AND DIRECTIONS

7. Close: Thanks for your interest, but we are looking for people with different interests or a different profile than you have at this time.

Focus Group Discussion Guide

I. Introductions – Purpose of the Study (5 minutes)

II. Auto Maintenance in General (10 minutes)

A. How important?

B. Main reasons for importance – Car life, environment?

C. How big a deal is it for us? Where do we go for maintenance?

III. Oil Changing (15 minutes)

A. How frequently do we do it?

B. Who does it?

C. How do we know when it's time to change our oil? (Is a window sticker important?)

D. How would you feel about going longer between oil changes? Pluses and minuses

E. Have you ever considered using synthetic oil? (Use?)

F. How do ultimately make the decision that it's time to change the oil in our car? Whose advice do you trust the most?

IV. Graphics Presentation (60 minutes if necessary)

[3,000 mile myth – Woman]

A. What does ad want you to do?

B. Do you find it convincing? Why or why not?

C. What elements of this picture grab you?

D. What do you like best about this picture?

E. What do you like least about this picture?

F. Do you like the color? Why or why not?

G. Will this ad make you change your behavior? Why or Why not?

[3,000 mile myth – Mechanic]

A. What does ad want you to do?

B. Do you find it convincing? Why or why not?

C. What elements of this picture grab you?

D. What do you like best about this picture?

E. What do you like least about this picture?

F. Do you like the color? Why or why not?

G. Will this ad make you change your behavior? Why or Why not?

H. Comparing the two ads, which of these is more convincing? Why?

[Drive Longer – Woman]

A. What does ad want you to do?

B. Do you find it convincing? Why or why not?

C. What elements of this picture grab you?

D. What do you like best about this picture?

E. What do you like least about this picture?

F. Do you like the color? Why or why not?

G. Will this ad make you change your behavior? Why or Why not?

[Drive Longer – Mechanic]

A. What does ad want you to do?

B. Do you find it convincing? Why or why not?

C. What elements of this picture grab you?

D. What do you like best about this picture?

E. What do you like least about this picture?

F. Do you like the color? Why or why not?

G. Will this ad make you change your behavior? Why or Why not?

H. Comparing the two ads, which of these is more convincing? Why?

The phrases in brackets refer to each of the prepared advertisements.